DRUG & COSMETIC INDUSTRY

AUGUST, 1952

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THOMAS R. FARRELL, Editor
FRANCIS CHILSON, Production Consultant
MILTON A. LESSER, Technical Editor
HARRY G. KELBLY, Raw Material Editor
FRANK CHILD III, News Editor
MAX FRANKEL, Art Director

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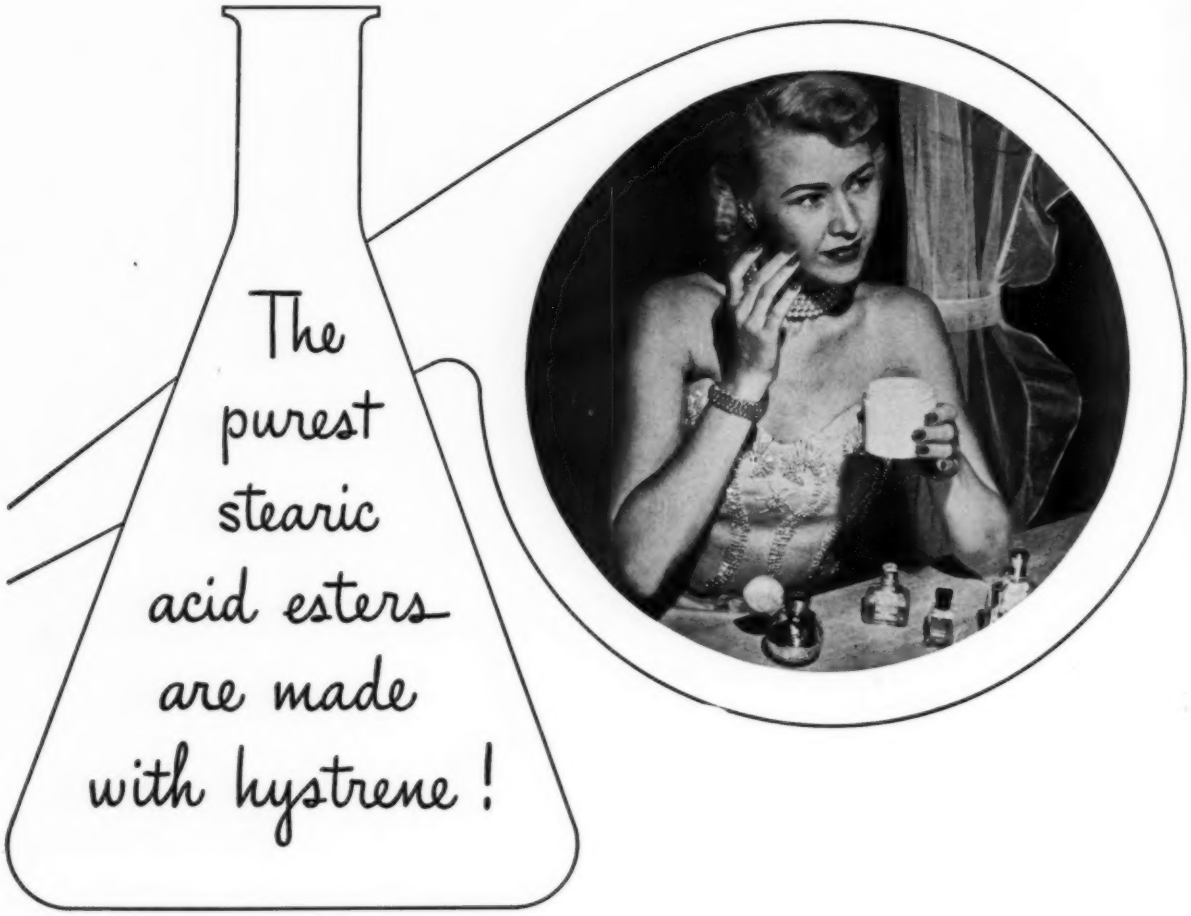

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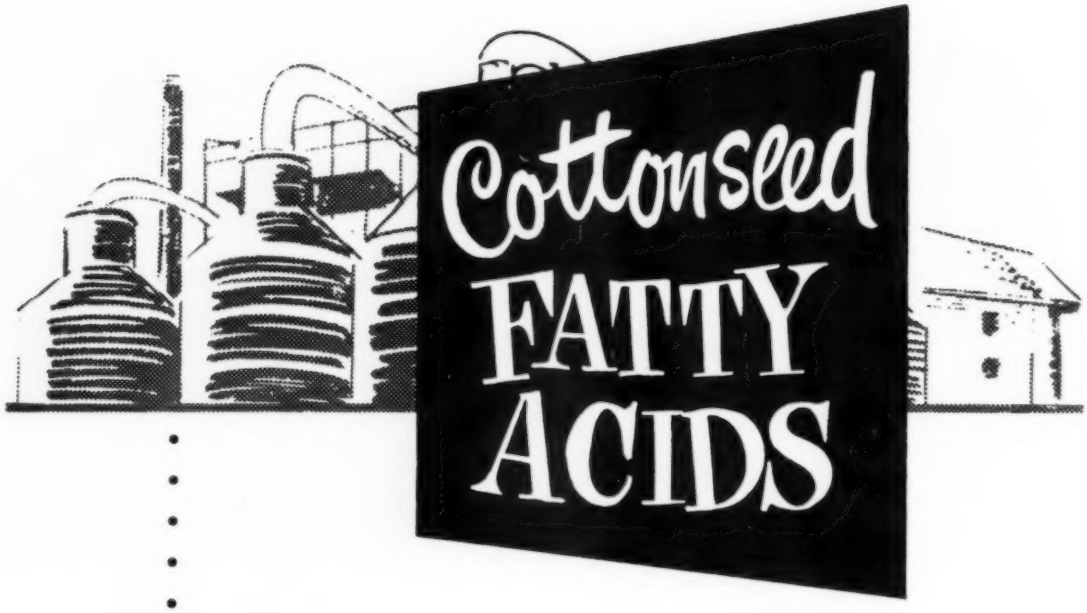

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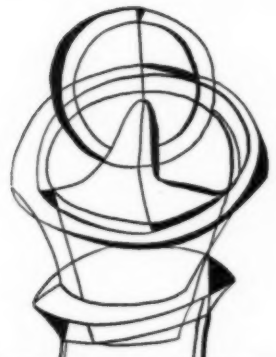

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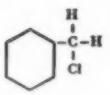


Synonym: Alphachlorotoluene
Formula: $C_6H_5CH_2Cl$
Appearance: Clear, colorless to light yellow liquid.

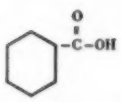
TYPICAL PROPERTIES

Molecular Weight	126.5
Freezing Point	−43° C
Distillation Range (Refined) 5° or less incl.	179.4° C
Distillation Range (Tech.) ... 6° to 10° incl.	179.4° C
Specific Gravity (Refined), 15.5°/15.5° C	1.107
Specific Gravity (Tech.), 15.5°/15.5° C	1.106

USES

Intermediate: Chemicals, dyestuffs, rubber accelerators, gasoline gum inhibitors, perfume bases, plasticizers, resins, wetting agents, pharmaceuticals.

BENZOIC ACID



Synonym: Phenylformic Acid
Formula: C_6H_5COOH
Appearance: White, odorless, crystalline solid. USP grade in powdered form; Technical grade in powdered or bead form.

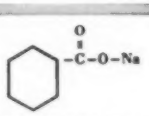
TYPICAL PROPERTIES, USP GRADE

Molecular Weight	122.1
Melting Point	122.0° C
Benzoic Acid	99.3% Min.
Water	0.2% Max.

USES

Intermediate: Dyes, pharmaceuticals, perfumes.
Textile: Dyeing assistant, dye stripping agent, preservative for sizing.
Preservative: Foods, cosmetic creams, lotions, tobacco.

SODIUM BENZOATE



Synonym: Benzoate of Soda
Formula: C_6H_5COONa
Appearance: White, odorless, crystalline solid in flake or powdered form. Available in USP or Technical grades.

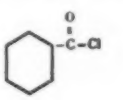
TYPICAL PROPERTIES, USP GRADE

Molecular Weight	144.1
Sodium Benzoate	99+%
Benzoic Acid	0.2% Max.
Water	0.5% Max.

USES

Preservative: For foods such as tomatoes, fruit juices, syrups, margarine; also preservative for pharmaceutical and cosmetic preparations, tooth paste.
Corrosion Inhibitor: For glycol anti-freeze solutions, chlorinated solvent type metal cleaners, etc.
Chemical Intermediate: Dyestuffs and pharmaceuticals.

BENZOYL CHLORIDE



Formula: C_6H_5COCl
Appearance: Clear, colorless liquid.

TYPICAL PROPERTIES

Molecular Weight	140.5
Freezing Point	−0.9° C
Boiling Point	198° C
Specific Gravity, 15.5°/15.5° C	1.219

USES

Chemical Intermediate: Introduce benzoyl group into organic compounds.
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Derivatives: Include polymerization catalysts, bleaching agents, perfumes, dyes and pharmaceuticals.

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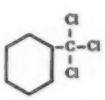


Synonyms: Alphatrichlorotoluene
Phenyl Chloroform
Formula: $C_6H_5CCl_3$
Appearance: Clear, colorless liquid.

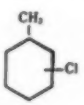
TYPICAL PROPERTIES

Molecular Weight	195.5
Freezing Point	−5° C
Distillation Range	219° to 223° C
Specific Gravity, 15.5°/15.5° C	1.380

USES

Intermediate: Chemicals and dyestuffs.

MONOCHLOROTOLUENE



Synonym: Methylchlorobenzene
Formula: $CH_3C_6H_4Cl$
Appearance: Clear, colorless to straw colored liquid.

TYPICAL PROPERTIES

Molecular Weight	126.5
Freezing Point	below −45° C
Distillation Range	158.3° to 161.7° C
Specific Gravity, 15.5°/15.5° C	1.080

USES

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Intermediate: Manufacture of rubber accelerators, chemicals.

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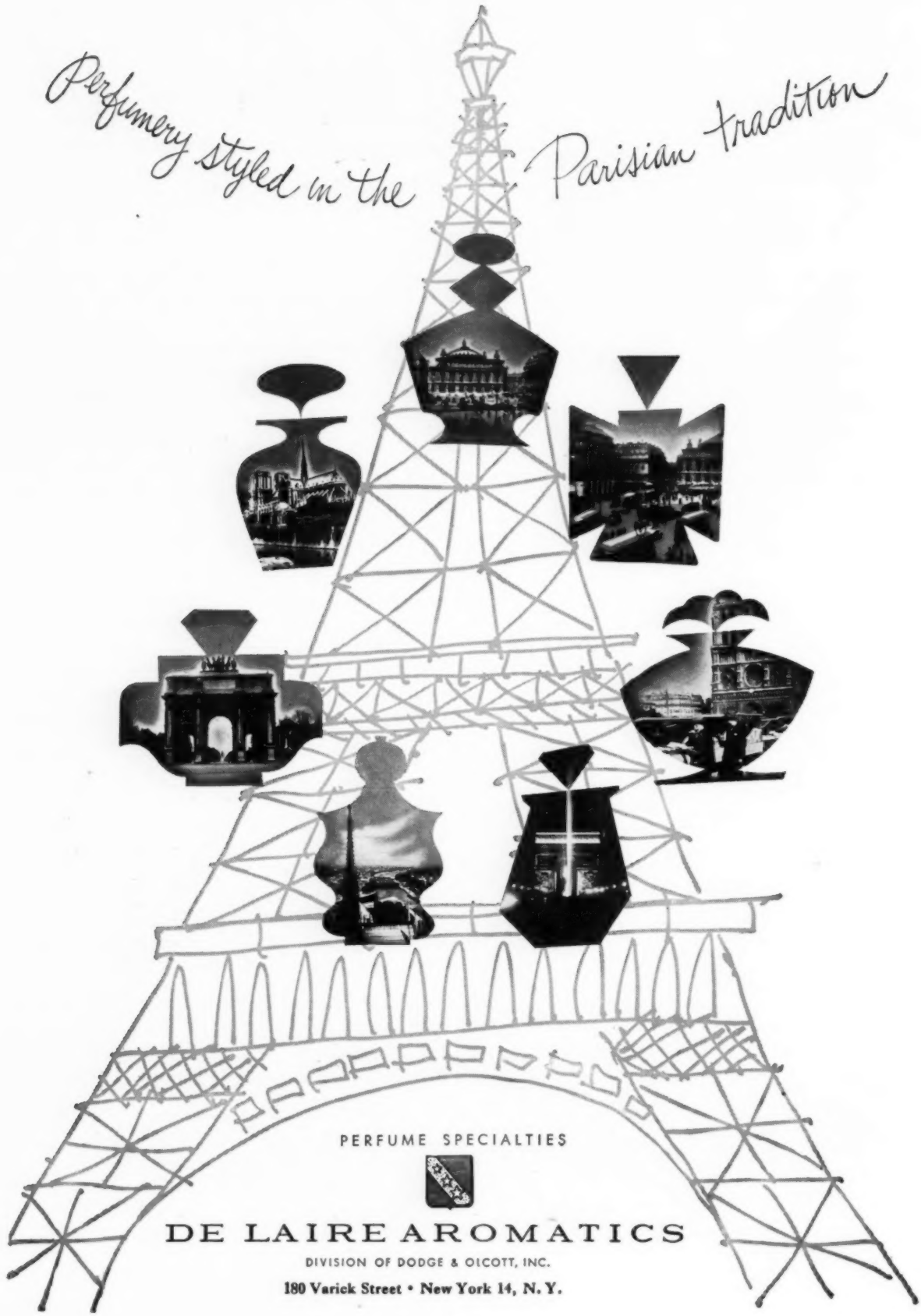

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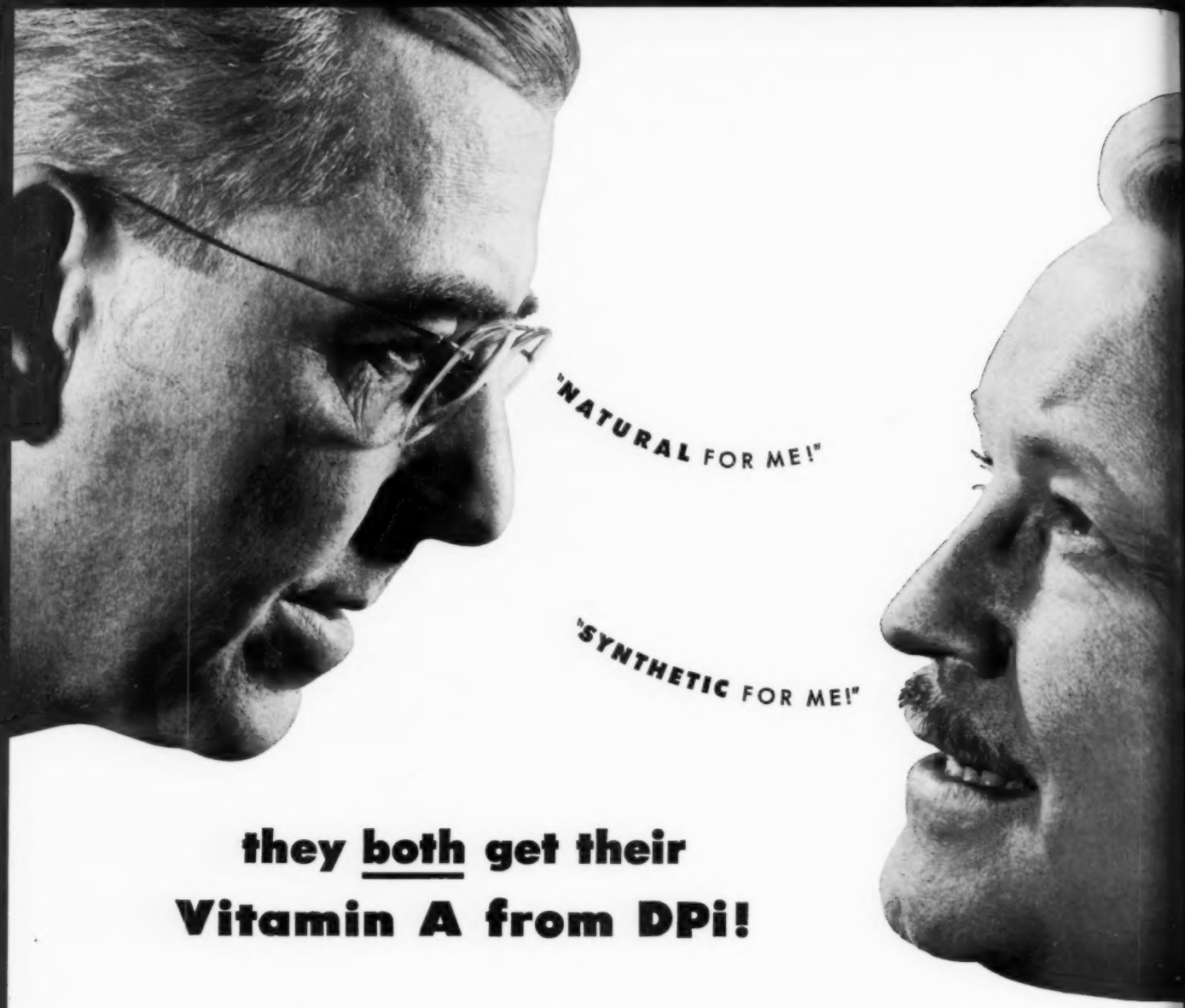

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U.S.I. CHEMICAL NEWS

August ★ A Series for Chemists and Executives of the Solvents and Chemical Consuming Industries ★ 1952

Methionine Improves Healing of Burns

Methionine has been found to be useful in promoting the rapid healing of burns when applied locally. It has been known for quite some time that methionine helped promote healing when given orally. However, it now appears that when methionine is applied directly to the injured area, healing processes are speeded up. This is an entirely new concept in the use of methionine which may have far-reaching implications.

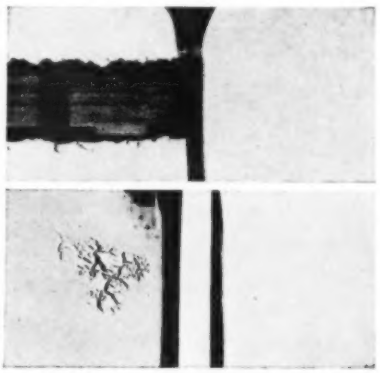
New Device Runs Plant On Enamel Baking Fumes

Thin porcelain rods about five inches long, coated with catalytic alumina and platinum alloy, are enabling an enamel baking plant to operate on heat derived from fumes that previously were a nuisance, it was announced recently. Placed in the plant's vent chimneys, the rods or wands are claimed to burn fumes rising from the ovens and to turn the heat back to the ovens. All annoying odors have been eliminated, the firm says, and it is able to save 90 per cent of its former fuel bill. The cost of the process is expected ultimately to be low enough for use in homes where its cost would soon be covered by savings in fuel. The process would triple the heat obtained from a gallon of fuel, it is said, and at the same time it would help solve an important air pollution problem.

U. S. I. Announces New Alkyd For Improving Latex Paints

Aroplaz 1274 Improves Adhesion, Water-Resistance, Freeze-Thaw Stability; Formulations Have Greater Range of Pigmentation, Are More Economical

Aroplaz 1274, a new resin developed specifically for use in latex emulsion paints, is now in production at U.S.I. Described as a long oil, oxidizing type alkyd of 100 per cent solids content, Aroplaz 1274 will at last enable paint manufacturers to produce superior latex-type finishes, still retaining the desirable features that appeal to portions of the buying public.



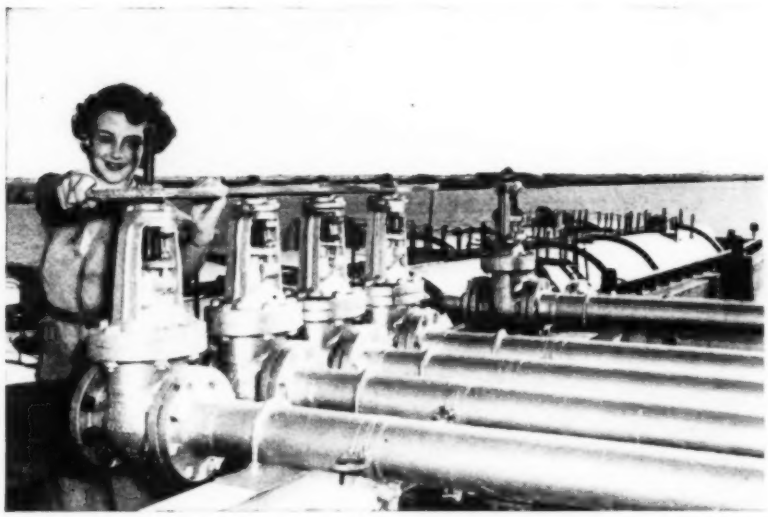
In the above test panels, films of commercial latex paints are on the left, films of latex paint modified with Aroplaz 1274 are on the right. Top panels show results after both paint films were submitted to 500 cycles in a Gardner straight line scrub tester. Bottom ones show results of water spotting 24 hours after the films were applied.

One deficiency common to most paints based on styrene-butadiene copolymer emulsions has been that the cohesive properties of the latex particles are often greater than their adhesive properties – with the result that the paint film can easily be stripped from the wall or undercoat. Aroplaz 1274 effectively corrects this balance by giving its formulations greater adhesion to all types of surfaces. Latex paints made with Aroplaz 1274 can even be used over non-porous enamel or gloss

MORE

Super-Thin Vinyl Film Obtained by New Process

Development of a process which makes possible the manufacture of a strong, durable, vinyl plastic film in thicknesses of one thousandth of an inch or less was announced in a recent report. The process is said to utilize a "blow extrusion" method whereby the vinyl film is extruded through a circular die at temperatures between 375 and 425° F. Films thus produced are claimed to have excellent clarity and good insulating properties, and the material, tubular in shape, can be obtained in widths exceeding 100 inches. Up to now, it has not been possible to economically produce such extremely thin films, it is said. The new process is expected to find extensive markets in industrial packaging.



The young lady in the photo is turning the valve that recently initiated the first barge shipment of ethanol, propanol, and butanol from U.S.I.'s Brownsville, Texas terminal. Produced at the giant hydrocarbon synthesis project there, the chemicals were shipped to New Orleans and Chicago via the Inter-Coastal Canal and the Mississippi River. The young lady is Miss Marion Boyle, daughter of U.S.I. plant manager Stewart Boyle.

Sodium Dispersions

Sodium users will be extremely interested in a recently issued technical bulletin on sodium dispersions – new, highly reactive forms of metallic sodium. The 4-page bulletin includes recent data available from the company's laboratories on the formulation of sodium dispersions in various media. Typical combinations of media, dispersants and stabilizers are presented, together with sodium particle sizes in the resultant systems. Sodium content, stability, fluidity, other pertinent properties of the dispersions are also discussed.

CONTINUED

New Alkyd

trim. In addition, they give films with far greater washability than most latex paints now on the market.

Stable to Freezing and Thawing

Another long-felt need which Aroplaz 1274 supplies in latex formulations is greater stability to freezing and thawing. Low temperatures, which complicate storage and transportation problems by causing most latex paints to permanently coagulate after one freeze-thaw cycle, have no effect after numerous cycles on Aroplaz 1274 formulations. Paints made in U.S.I.'s laboratories have been used successfully after they have been frozen solid and thawed a number of times.

Aroplaz 1274 greatly reduces the long curing time ordinarily required for latex paints to acquire washability, and it imparts high water-resistance during early stages of drying — another quality which most paints of this type lack. Tests in U.S.I.'s resin laboratories have shown that the blisters usually resulting from water spots on newly applied latex films are entirely absent when the paints are made with Aroplaz 1274.

Greater Range of Pigmentation

The new resin offers a greater range of pigmentation than has been possible up to now in latex formulations. Pigment loading in Aroplaz 1274 paints can be adjusted to give sheens all the way from satin to true flat. In addition, the resin allows a greater volume of low-cost extender pigments to be used, which makes for more economical formulations. The greater hiding power of Aroplaz 1274 finishes is another feature of its economy because the paints can be used equally well over dark or light areas, usually with only one coat being required for the job. Aroplaz 1274 finishes exhibit superior color retention even on long exposure to sunlight.

Aroplaz 1274, containing no solvent, is practically odorless and is expected to increase further the sales appeal that latex paints already have on this count. Paints properly formulated with this resin have much less odor than others now on the market that have been examined by U.S.I.

See Ion Exchange Uses In Gold, Silver Recovery; Water Softeners for Autos

Ion exchange resins may soon be used in the commercial recovery of precious metals such as gold and silver from ore and plating solutions, according to a recent report. The resins are high capacity cation and anion exchange resins, capable of recovering metals in greater quantities and at faster rates than have been possible up to now. Similar resins are already being used to recover zinc from rayon plant wastes, tin from alkaline plating baths, and copper and chromium from electroplating, anodizing and stripping solutions.

Auto Water Softeners

Motorists may also become large users of ion exchange resins as the result of a new miniature water softener for automobile cooling systems. Designed to give protection against scale and corrosion, the device consists of a plastic cartridge which contains a mixture of a cation exchange resin and a corrosion inhibitor sealed in a polyethylene-treated sack. Water, bypassed from the main stream of the heater line, is treated by passing it through the sack at the rate of about 24 quarts per hour at road speeds of 30 to 40 mph. The resin is compatible with antifreeze materials, and a cartridge lasts approximately six months, it is claimed.

Use Thermocouple to Grow High-Melting Crystals

An improved technique for growing small crystals of high-melting compounds is reported to center around the use of a hot-thermocouple which heats the specimen at the same time that it measures the temperature. A small amount of the material is placed on the thermocouple, melted, then cooled by manual control while crystal formation is watched through a stereoscopic microscope. The growth of unwanted crystals is thus minimized, it is said, allowing the growth of more satisfactory single crystals.

TECHNICAL DEVELOPMENTS

Information about manufacturers of these items may be obtained by writing U. S. I.

To facilitate detection of titration end points, a specially designed flask has a side arm near the bottom into which flow of liquid can be controlled to make the color more visible. **(No. 831)**

Concrete and plaster slabs will float on water indefinitely, it is claimed, if a new waterproofing powder, which prevents capillary action of moisture in hardened concrete, is added to the mix. **(No. 832)**

Ordinary window glass is made shatterproof by spraying with a new liquid plastic, said to hold glass together better than wire glass when struck and to retain safety qualities for at least five months. **(No. 833)**

Flameproof coatings for composition roofs, metal, masonry and concrete waterproofing, textiles, and wallboard are now in production. Applied by conventional methods, coatings will not peel or flake, the manufacturer says. **(No. 834)**

A new industrial and automotive lubricant, containing no metallic soaps or fatty acids, will not melt or freeze in temperatures ranging from subfreezing to 500° F., and is unaffected by boiling water, according to the maker. **(No. 835)**

To prevent slippage of belts and pulley faces, a liquid belt dressing is available in spray containers. Dressing is said to be quickly absorbed, non-injurious to leather, and to impart a high coefficient of friction. **(No. 836)**

A new plastic coating for paper is claimed to offer excellent grease- and water-proofness, to be non-toxic and non-inflammable, and to be suitable for paper plates, cartons, trays, etc., used for food. **(No. 837)**

An airless spray gun which operates on a centrifugal principle reportedly eliminates the rebounding of paint that accompanies air spraying and can be used in small spaces that air guns cannot reach. **(No. 838)**

A new home oven cleaner for porcelain, enamel, and steel surfaces is said to make all hard encrusted materials easily removable without scraping or use of other chemicals. **(No. 839)**

A high solids liquid neoprene solution is now available for use as an industrial maintenance coating. Applied by brush, it is claimed to cure at ordinary temperatures to a thick resilient protective film. **(No. 840)**

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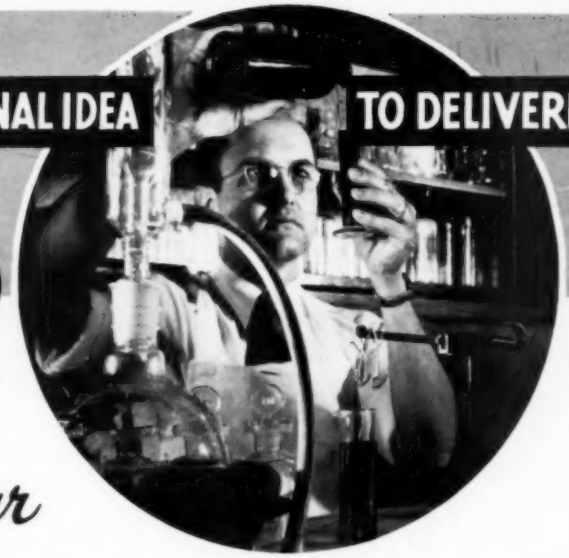

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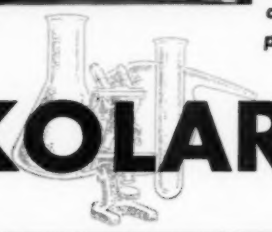

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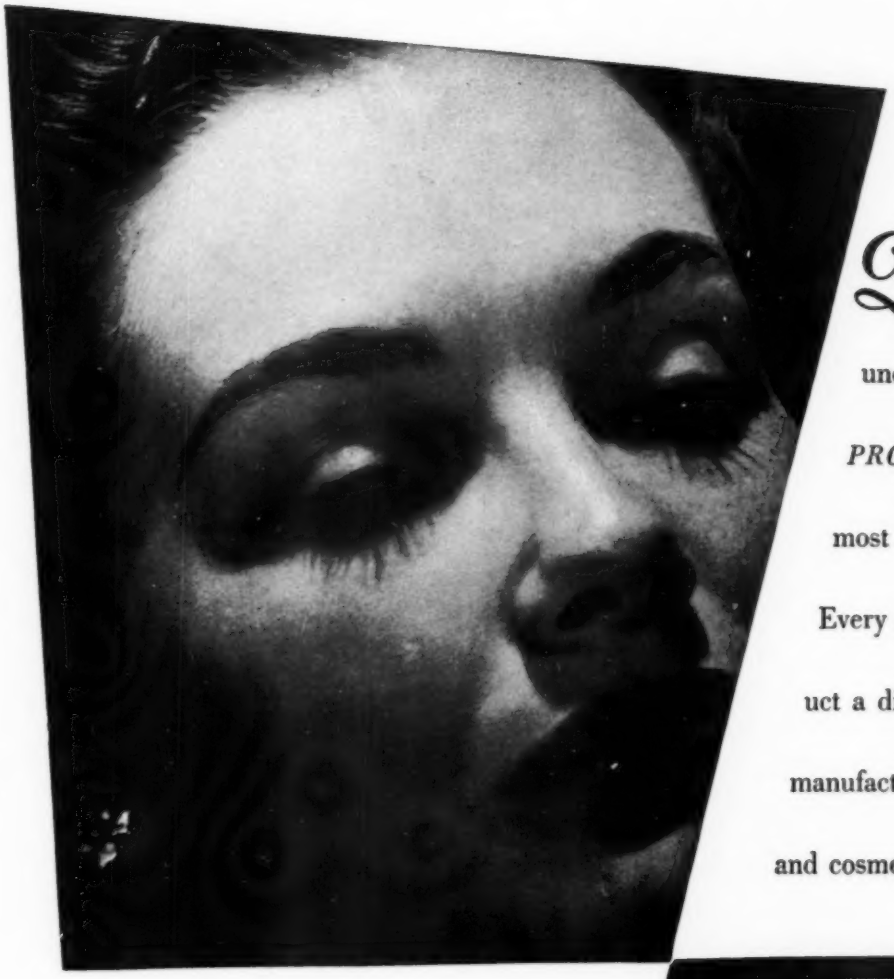

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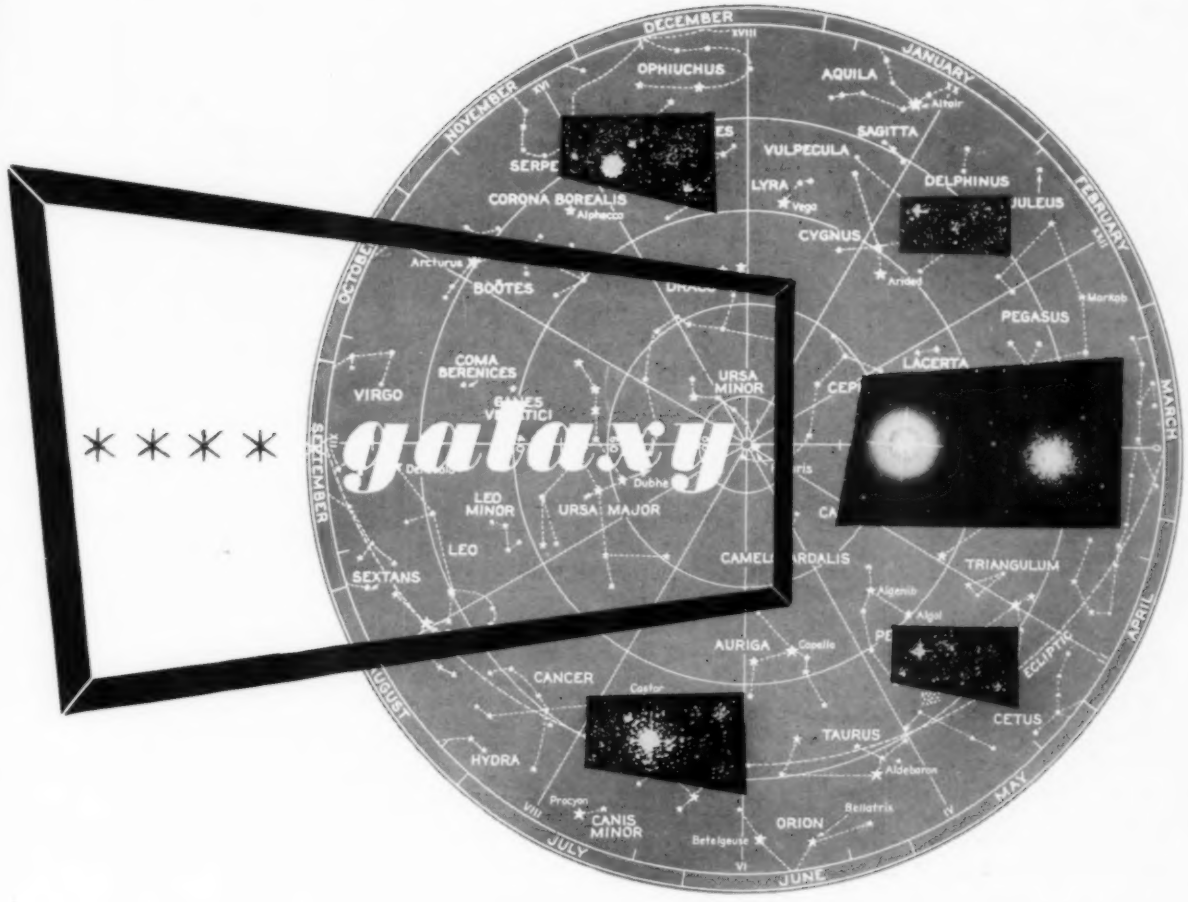

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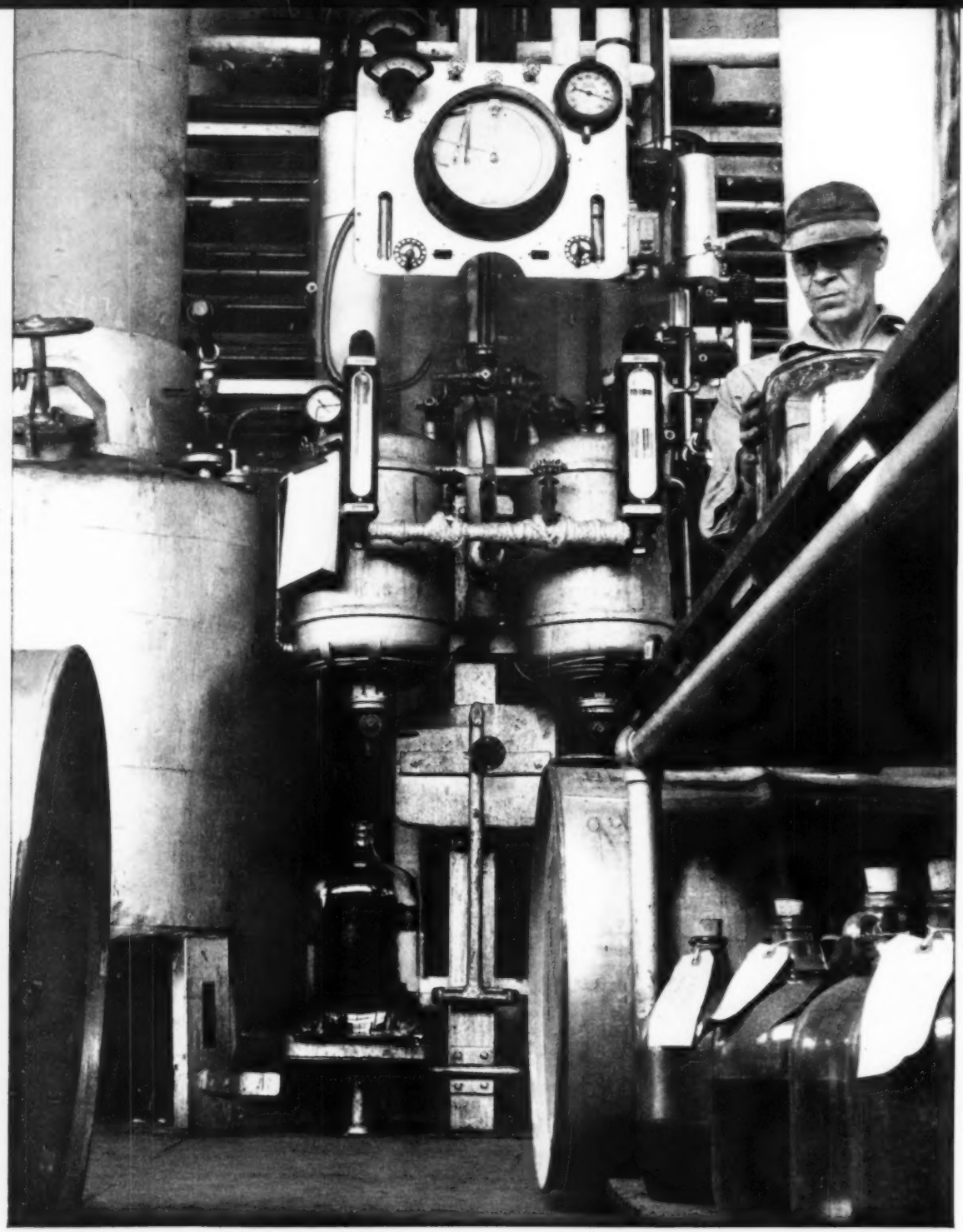

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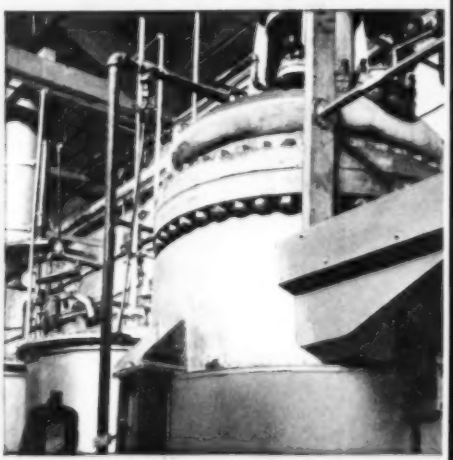

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Important Properties—Typical Values

	Powder	Bulky	Super Bulky
Bulk—Approx. fl. oz./lb.	45	75	130
Approx. Particle Size Distribution*			
less than 5 microns	15%	50%	65%
5-10 microns	10%	30%	15%
10-20 microns	35%	10%	15%
20-40 microns	40%	10%	5%
*Determined by sedimentation methods.			
Adsorptive power—mg. methylene blue/gram	not less than 100	not less than 200	about 150
Acid consuming capacity—cc. N/10 HCl/gram	140-160	140-160	140-160

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AMA Points to Dangers of Chloromycetin

Chloramphenicol, the broad spectrum antibiotic manufactured by Parke, Davis & Company and sold under the trade-marked name of Chloromycetin, is believed to cause a frequently fatal blood disease called aplastic anemia. There have been a number of deaths. The condition is described by the American Medical Association as follows:

"The serious complication is a type of anemia in which all the formed elements of the blood, including red cells, white cells, and platelets, are deficient. This deficiency is due to improper functioning of the bone marrow. The disease, usually fatal, occurred in patients who were receiving large doses of the drug or in patients who had kidney insufficiency. It was especially noticeable in those cases where the drug was given in large doses, then stopped, and then given again. When the drug was given the second time, even in small doses, the severe blood abnormality appeared."

The drug was discovered in 1947 in a sample of soil from a plowed field near Caracas, Venezuela. Determination of the chemical structure of the drug was reported on in July 1949 by Bartz who pointed out that it was "the first naturally occurring compound which contains a nitro group or which is a derivative of dichloracetic acid." In November 1949 Smadel suggested that the drug might be toxic for the hemopoietic system because of the presence of the nitro group. However, Smadel reported that no significant hemic involvement was noticed in effective treatment of rickettsial diseases, typhoid, brucellosis, and gonorrhea. The same year Volini observed marrow depression in three patients who received from 30 to 60 gm. of the drug in 9 to 13 days. In all cases, however, the marrow returned to normal when treatment was stopped. Gill reported two cases of agranulocytosis that cleared when treatment was stopped. Fatal cases of aplastic anemia were reported by Rich in December 1950, and by Lloyd in January 1952. In the July 5, 1952 issue of the Journal of the American Medical Association, Claudon and Holbrook reported two such fatalities, Smiley and associates reported three fatalities, and Sturgeon reported on four fatalities, and he mentions two additional fatalities which are to be reported by Carpenter. Thus the reports in this one issue give mention of 11 fatalities traceable to chloramphenicol.

The American Medical Association issued a release to the press dated July 3 announcing its "warning signal to the nation's 200,000 physicians against promiscuous use of chloromycetin." This release told of the warning given editorially in the issue of the J.A.M.A. dated June 28, and of the articles to appear in the issue of July 5.

On the day of this release, the Food and Drug Administration disclosed that its entire staff has begun a nationwide survey of the subject. Deputy Commissioner George P. Larrick said at that time that 200 new cases of aplastic anemia among people treated with the drug had been found during the previous four or five days, and that some deaths had occurred. FDA officials emphasized, however, that these reports are not definite proof that the drug is unsafe since many of the patients were treated with a wide variety of sulfa drugs and other antibiotics.

One thing appears certain as the result of this development, and that is that it is going to be much more difficult to introduce a new antibiotic from this time on. One suggestion is made that chloramophenicol be restricted to use in typhoid fever. While this may not be necessary, it appears that, at least for some time, this drug will only be administered in cases which have been carefuly examined to determine any likelihood of damage from the drug. Also, this development will bring sharply to the attention of the medical profession and others that antibiotics generally are not harmless substances and that they cannot be used promiscuously. This should result in a changed attitude on the part of physicians to all antibiotics and their promiscuous use resulting in a noticeable decline in their total consumption.

P.D. Answers AMA Chloromycetin Attack

In answering the A.M.A. attack on Chloromycetin, Parke, Davis & Company points out that of an estimated total of 8 million patients treated with the drug, only 112 have been reported as showing evidence of mild or severe disorders in the blood-forming system, and that there is no definite evidence that use of the drug had anything to do with development of blood dyscrasias in even these few cases. The company notes that other drugs and treatments were used in the cases cited in the J.A.M.A., and suggests that development of aplastic anemia by the patients could be due to some other drug than Chloromycetin—even if any connection between use of the drugs and development of the disease could be assumed.

Answering the J.A.M.A. editorial which said that serious side reactions to a drug may not be recognized until it has been in general use for some time, the company says:

"In this instance it is doubtful, however, that untoward hematopoietic phenomena were not recognized during the early period of general use, but rather that none occurred. This dictum is supported by the negative evidence on blood disorders deriving from a continuous and extensive investigative experience with Chloromycetin both in laboratory and clinic since 1949, designed to study its effects on all systems concurrently with its therapeutic evaluation."

P. D. further says that past clinical experience and recent intensive clinical studies as to a possible connection between Chloromycetin and blood disorders has failed to reveal any positive evidence whatsoever to support such theory. The company points out, however, that some blood disorders are possible when potent drugs of any type are used, and suggests that "alert clinical observations and adequate blood studies should be made to detect these abnormal effects before they have progressed to an irreversible stage."

P.D. Defends Chloromycetin Patent in Israel

Last month, Parke, Davis & Company successfully defended its patent on chloramphenicol, or Chloromycetin, in Israel, where it brought action against a local company known as Abic which was marketing the drug in that country. The defense used by Abic was that the drug, which they sold under the name Cynthomicin, was not an invention but a discovery of a product of nature, and therefore was not patentable.

Judge Zeev Zeltner agreed that the product was produced by nature, although in minute quantities, and had been first discovered in Venezuela. However, he held that this discovery together with the process of isolating it, crystallizing it and bringing it to a form in which it could be used as a medicine was invention and therefore patentable under Israeli law. Under Israeli law, an invention is "a new commercial commodity or application in some new manner for any purpose of industry or manufacture of any means already known or used."

Abic was ordered to pay Parke, Davis to the amount of the drug it had imported—an amount estimated at some tens of thousands of dollars—in addition to paying P. D's attorney's fees and the cost of the court's scientific adviser. Appeal to the High Court of Justice, if made, might alter the sentence, but could not change the district court's findings of fact.

Abic was selling the product, which it imported from Italy in bulk, for two years. Suit was not brought in Italy because under Italian law pharmaceutical products lack patent protection.

While Abic maintained, during the ten-day trial, that the product was produced in nature by the micro-organisms known as strepyomycis Venezuela, P. D. experts asserted that the micro-organisms produced useful quantities of the drug only when cultivated in artificial circumstances, which constituted invention. In other words, the application of the discovery leading to the production of the secretion and the final isolation of the crystals known as Choromycetin was invention.

Thorkon Claims Attacked by FTC

Thorkon, marketed by The Thorkon Company, Atlanta, is the subject of a complaint by the FTC. Thorkon is a vitamin and mineral compound consisting of pink, red and gray tablets. Claims made are said to be that a person taking the preparation can expect to be relaxed, to have steady nerves, a happy disposition, a healthy appetite, good digestion, no heartburn, improved color, appearance and health, and added vigor, energy and happiness; also, that he will sleep well, feel well and stronger and better generally, and be free of muscular aches and pains.

Further it is claimed that the product constitutes a competent and effective treatment for blotchy skin, a tired run-down body, restlessness, nervousness, physical exhaustion, shortness of breath, weakness or heaviness in the limbs, stomach distress, backache, fatigue, neuritis and other ailments and that Thorkon can be relied on to prevent, relieve or correct the physical impairments or conditions resulting from advancing age, including graying hair; and that the product is supercharged with vitamins and minerals, including vitamins B_{12} and B_6.

The complaint charges that these claims are misleading and deceptive. Thorkon will not, according to the Commission, prevent, relieve or correct physical impairments or conditions of advancing age and will have no effect upon graying hair as claimed. Also it is charged that the preparation will not benefit or relieve other conditions as advertised, except in those infrequent cases where such conditions are caused by a deficiency of vitamin B_1, B_2, niacinamide or iron; and further that Thorkon is not supercharged with vitamins and minerals, and in the case of vitamins B_{12} and B_6, the quantities are inadequate for therapeutic purposes.

The complaint charges that by advertising its products as a cure or remedy for the designated symptoms and conditions when due to vitamin deficiencies, respondent falsely represents, not only that the symptoms and conditions may be due to vitamin and mineral deficiencies, but also represents that is a reasonable probability that such symptoms and conditions are in fact due to such causes. Each of these symptoms and conditions results much more frequently from other causes such as cancer, tuberculosis, syphilis, arthritis, rheumatism, heart disease, kidney disease, liver disease, gall bladder disease, and numerous other serious ailments in which event Thorkon will have no therapeutic value whatever.

Chlorophyll and Parsley

Surprising as it seems, there are still a very large number of people in this industry who are not aware of the fact that chlorophyll as it occurs in nature will not banish odors. Chlorophyll is a green chemical extracted from plants, the commercial source now being alfalfa. As it occurs when extracted it contains one atom of magnesium. When this atom of magnesium is replaced by copper, the chlorophyll—which was previously used principally for its color value—the chlorophyll becomes deeper and light-fast green. Then when the hydrogen in the chlorophyll is replaced by sodium, the product becomes water soluble. This is called sodium copper chlorophyllin, or more simply, copper chlorophyllin, and it is this chemical which is used in wound healing and to banish odors. There are two forms of chlorophyll—A and B—which both occur in nature. The chlorophyll A is the predominant form in the ratio of about two to one. The difference between them is that chlorophyll B contains two hydrogen atoms less, and one oxygen atom more than chlorophyll A. The copper chlorophyllins made from both of these forms of chlorophyll are equally effective.

This explains the fact that goats and other animals who eat large amounts of chlorophyll-bearing plant life do not become odorless.

However, there is something else concerned with this problem that so far has not been explained. Why is it that when plain parsley is chewed, the breath and taste of onions and other things immediately disappears? It is apparent that parsley naturally contains some chemical that does the trick as it occurs in nature. This is more than can be said for chlorophyll. Why doesn't someone do a real job in breaking down parsley? If the ingredient is extracted and proven, it can probably be made synthetically if parsley is too expensive to cultivate.

Revlon Sues to Defend Franchises

In an attempt to protect its franchise contracts with retailers and beauty salon distributors, Revlon Products Corporation has brought suit for $250,000 against Tedburn Company and Milton Barrie of New York who are charged with inducing the Shuford Company of Richmond, Va., a Revlon salon distributor, to divert Revlon merchandise. Revlon Vice-president Martin Revson, stating that the company will use every legal means to prevent violations of these agreements, explains that because Revlon products are a valuable asset to retailers, there have been instances where non-franchised outlets have obtained the products through unauthorized diversion from shipments to legitimate franchise holders.

English and American Dentifrices

Stating that Americans demand therapeutic qualities in a tooth paste, Melvin A. Block, president of Amm-i-dent, says that in England conditions are quite different. He says:

"An English survey of dentifrice habits reveals that teeth whiteness is still the all-important factor . . ., The paste's flavor was second and freshness of the mouth third. Americans, on the other hand, have been increasingly conscious of a tooth paste's decay-reducing qualities since . . . an industry-wide changeover to ammoniated dentifrices. Now we have all swung into the struggle for chlorophyll markets. There's a jockeying for position. The big companies are trying to persuade entrenched tooth paste buyers that they are ready for a change, and that maybe chlorophyll is worth a try. It is at this point, when they change to a chlorophyll tooth paste, that consumers look for the paste offering the most advantages."

B-Vimm Claims Called Misleading

B-Vimm, a vitamin-mineral preparation has been cited by the Federal Trade Commission for false advertising. The complaint is issued against Thomas D. McBryde Joe T. Pilcher, and Perry Elliott, partners trading as the B-Vimm Company, Selma, Ala.

The Commission says that the advertising has represented B-Vimm as a vitamin, liver, iron and mineral dietary supplement; that it contains all the essential vitamins and minerals and is a competent and effective treatment for all diseases or conditions caused by vitamin or mineral deficiencies; that the daily consumption of B-Vimm will effectively promote the removal of poisons from the blood; that B-Vimm gives fast relief in muscular pain and joint stiffness and constitutes a competent and effective treatment for a weak, run-down condition, lack of vitality, irritability, nervousness, sleeplessness, indigestion, heartburn, lack of appetite, kidney trouble, heart trouble, constipation and other specified diseases attributed to deficiencies of vitamins and minerals.

The Commission states that these claims are misleading. While B-Vimm, taken as directed, supplies many times the adult minimum daily requirement of vitamin B_1 and iron, it supplies only the minimum daily requirement of B_2 and niacinamide. It does not supply the minimum daily requirements of calcium or phosphorous nor does it supply iodine, a required mineral, or such essential vitamins as A, C, D, B_6, and B_{12}, or the anti-anemia factor of liver. Said preparation therefore cannot be properly described as an adequate vitamin and mineral dietary supplement and is of no value in the treatment of any deficiency other than B_1 and iron.

The Commission charges that B-Vimm will not give fast relief and, in the infrequent cases of vitamin B_1 and iron deficiencies which occur if any benefit is to be derived, the product must be administered over a considerable period of time. It has no value in the removal of poisons from the blood nor is it of value in relieving muscular pain or joint stiffness, high blood pressure, low blood pressure, heart trouble, kidney trouble, arthritis, rheumatism, coughs or colds, B-Vimm possesses no value in the treatment of a weak, or run-down condition, lack of vitality, nervousness, sleeplessness or other conditions which may be caused by deficiencies of vitamin B_1 or iron, except in those infrequent cases where such conditions result from such deficiencies.

Each of said conditions results much more frequently from a number of causes including cancer, tuberculosis, syphilis, heart disease, gall bladder disease, kidney disease, peptic ulcer, and numerous serious ailments for which B-Vimm is of no value whatever, says the Commission.

Penicillin Production Picture

Penicillin production capacity in this country is far greater than consumption here plus available export demand. One manufacturer who has been in the item since the war days informs us that they are operating at ten per cent of production. Others inform us that they operate at capacity for a while and then shut down, believing that this method gives them a much better cost picture than if they limped along at twenty or thirty per cent of capacity.

The export market has very largely disappeared due to production in other countries. Four or five months ago, when the sharp break in penicillin prices occurred, both Italy and Japan were offering goods for import into this country below the two cent per hundred thousand units market that had been prevailing here. It is said that the only ones now realizing any profit from the sale of penicillin are the manufacturers of the glass containers in which it was shipped. However, there are many who say that production costs have been brought in line with the low prices in many instances, the only drawback to a nice orderly market with a small profit being the lack of demand. Furthermore, manufacturers see but little possibility of demand improving due to large production abroad and no likelihood of any marked increase in use here.

But despite this sad picture in the penicillin market, the Defense Production Administration recently made known a request for a productive capacity for the drug of 600 trillion units by January 1, 1955. This figure is almost double the productive capacity of this country as of January 1, 1951. The agency points out that because of the use of penicillin the death rate from battle wounds has been reduced to the lowest point in history, and on the civilian front its use has had similar results on diseases such as pneumonia and meningitis.

What the reaction of manufacturers to this request, will be is easy to forecast. However, the government is probably thinking in terms of an all-out conflict in which penicillin supplies in large quantities would have to be available all over the world, and in which foreign capacity could not be relied upon even to supply many parts of the world which they are now supplying. Streptomycin does not appear to be in a much better market condition than penicillin, although it is not as large an item, and therefore the over-production is not as large.

Male Sex Hormone Patent Valid

Infringement of two male sex hormone patents held by Ciba Pharmaceutical Products, Inc., has been conceded by Chemical Specialties Co., and the latter company has made a substantial cash payment to Ciba in settlement of past infringements, it has been revealed by Ciba secretary, L. J. Sichel. In a judgment on consent before the Federal District Court in Newark, N. J., dated July 11, 1952, Chemical Specialties admitted that its allegations that the Ciba patents were invalid under the patent laws and unenforceable because they were misused as part of a conspiracy in violation of Federal anti-trust laws "have no basis in fact." The allegations were contained in a complaint filed by Chemical Specialties Co. with the court on January 4, 1949.

The judgment affirmed the validity of Ciba's basic patents (2,109,400 and 2,308,833) "covering the pharmaceutical products testosterone proprionate and/or methyl testosterone and/or processes for their manufacture.

At the same time Ciba agreed to give both Chemical Specialties Co. and American Syntex, Inc., a Puerto Rican corporation, non-exclusive, non-assignable licenses to manufacture, use and sell testosterone proprionate and methyl testosterone in the U. S. and its territories and possessions.

Overproduction of Alcohol Forecast

The Defense Production Administration, in setting a goal for 1955 output of 410 million gallons of ethyl alcohol, predicts that this figure will be exceeded. The agency estimates alcohol productive capacity for that year at 490 million gallons, which will result in an 80 million gallon surplus. The government itself authorized 22 million gallons of expansion, but 70 million is being built without government aid. A DPA official explained that the surplus is in large part unavoidable asthe result of expansion in other chemicals. In order to increase production of short-supply chemicals which are produced by multi-product processes, the agency was obliged to approve some alcohol facilities which may not be needed, he said. The alcohol situation will be further complicated by the shutdown of the government's synthetic rubber plants which formerly consumed up to 40 per cent of the total domestic production.

Squibb to Mathieson Chemical

The sale of E. R. Squibb & Sons to Mathieson Chemical Corporation will remove from the industry as an entity one of the foremost ethical manufacturers. It will also remove from active participation in the company's and the industry's affairs one of its outstanding figures, Carleton H. Palmer, for many years president, and more recently chairman of the board of Squibb. On the basis of five shares of Squibb for three shares of Mathieson, the price being paid for the common stock of Squibb figures out to be approximately $105,000,000. From the time of the merger on, Squibb will be merely a division of Mathieson.

N.A.R.D. and Fair Trade

After saying in one paragraph of an article in its July 7th issue, that "It was really a miracle that H.R. 5767 (the McGuire Bill) passed Congress," the N.A.R.D. Journal says in the next paragraph:

"Certain supposed wiseacres were sure that the bill would never pass Congress. They insisted that the plans of action were wrong and they resorted to tirades and trickeries to nullify the efforts of Dr. Dargavel and the N.A.R.D. Now they will dine on crow."

We do not mean to take anything away from Dr. Dargavel in his great triumph. If any one man is to be congratulated for his tremendous effort successfully to restore fair trade in this country to the status it

enjoyed before the Schwegmann decision of only a little over a year ago, that man is Dr. Dargavel. From the day of the Schwegmann decision until the day the McGuire Bill was signed by President Truman, it looked like an impossible task. Yet Dr. Dargavel never faltered in his efforts and the impossible was accomplished.

New Fair Trade Contracts Not Needed

Many manufacturers have raised the question whether or not it is necessary for manufacturers to issue new fair trade contracts in order to enforce minimum prices now that the McGuire Bill has become law. James F. Hoge, counsel for the Proprietary Association, says that new contracts are not necessary as a general thing. He explains as follows:

"New contracts are not required as a result of the enactment of the McGuire Bill unless special considerations make them advisable as legal precautions or desirable from the standpoint of expediency. For instance, where a manufacturer 'went off' fair trade during the period since the Schwegmann decision or where there may be some questionable provision in a contract, it is advisable—if indeed it is not necessary—that new contracts be issued. Where a manufacturer desires for reasons of customer relations or other circumstances of expediency to set up new contracts, then of course the issuance of them is determined by those considerations.

"In the absence of the foregoing conditions, the passage of the McGuire Bill does not, as a matter of law, necessitate new contracts. The old ones were not invalidated by the Schwegmann decision. The Miller-Tydings Act was not invalidated by it. The contracts were made under state laws which have remained undisturbed during the period. All that the McGuire Bill has done is to remove the federal barrier to enforcement in interstate commerce of the non-signer clause of the state acts.

"With respect to such contracts, and where the manufacturer has not abandoned fair trade during the interval between the Schwegmann decision and the McGuire Bill, a notice to the trade—while perhaps not necessary—would be practically useful and legally reassuring. Such a notice should be related to the passage of the McGuire Bill, should remind the trade of the existence of the manufacturer's fair trade contracts and of the manufacturer's intention to enforce the non-signer clause of the state laws pursuant to which such contracts were made and now exist."

Fair Trade Bureau Continued

The Bureau of Education on Fair Trade voted last month to continue their activities indefinitely and to become completely representative of all retail elements favoring fair trade. The organization was founded July 1, 1949 to promote for three years a program designed to make all retailers, and, as far as possible, the public, understand fair trade. Maurice Mermey, bureau director, said that the damage suffered by the fair trade movement during the last year or so made it almost imperative that the organization carry on. It was decided to set up an advisory counsel for the Bureau including representatives of all the retail fields which employ fair trade methods. The board will have fifteen members from fifteen fields other than the drug store products field, including book-sellers, retail jewelers, tobacco dealers, grocers, and hardware dealers. The new representation will come from the national trade associations in the fifteen fields. Also the Bureau plans to retain an economic adviser, marketing consultant and consumer counsel.

Cortisone in New Zealand

Cortisone is to be manufactured from by-products of whale carcasses by September next by a new company at Picton in Cook Strait, New Zealand. This will be a new venture for Taloil Industries Proprietary of New South Wales, the subsidiary having a registered capital of £100,000 sterling.

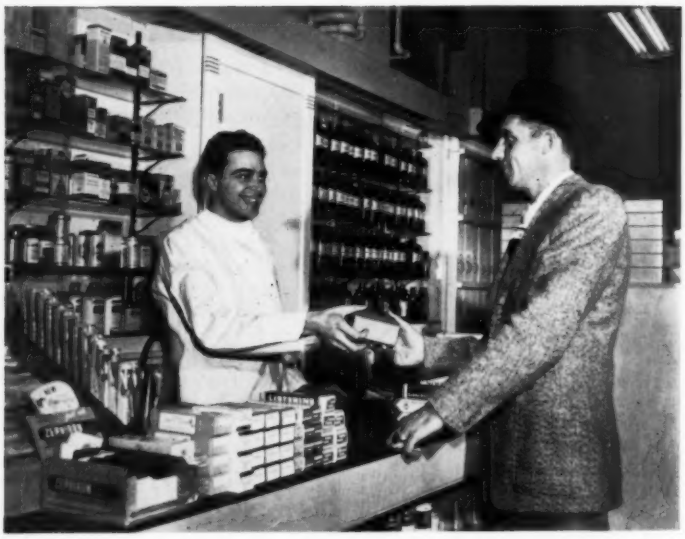
30 Oldest Drug Houses

Our list of Oldest Drug Houses continues to grow. This time we add two more manufacturers to bring the total to an even thirty—close to four times the eight houses originally taken from the Reed & Carnrick quarterly some time ago. The two new entrants are Lanman & Kemp-Barclay & Co., New York, established in 1808, and Borcherdt Malt Extract Company, Chicago, established in 1868. Therefore, starting with the first recorded drug manufacturer, and ending arbitrarily with Eli Lilly & Company, merely because they were the last named house in the original list of eight, we now list the following thirty houses:

Caswell-Massey Co. Ltd.	1752
Schieffelin & Company	1781
Lanman & Kemp-Barclay & Co.	1808
The Tilden Company	1824
S.S.S. Company	1826
The Wm. S. Merrell Company	1828
McKesson & Robbins	1833
Strong Cobb & Co.	1833
Boericke & Tafel	1835
Otis Clapp & Son	1840
Smith, Kline & French	1841
Carroll Dunham Smith Pharmacal Co.	1844
Sharp & Dohme	1845
Solon Palmer	1847
Chicago Pharmacal Company	1855
Hance Bros. & White Co.	1855
William R. Warner & Co.	1856
E. R. Squibb & Sons	1848
Reed & Carnrick	1860
Wyeth, Inc.	1860
The Burroughs Bros. Mfg. Co.	1863
Buffington's	1865
Parke, Davis & Company	1866
Borcherdt Malt Extract Company	1868
Lloyd Brothers, Inc.	1870
Henry K. Wampole & Co.	1872
Chilcott Laboratories	1875
Lydia E. Pinkham Medicine Company	1875
The Arlington Chemical Company	1876
Eli Lilly & Company	1876

EWING GALLOWAY PHOTO

Fair Trade Restored



LAMBERT PHOTO

To the surprise of most people, the McGuire Bill to overcome the effect of the Schwegmann decision and reestablish Fair Trade in this country became law when President Truman approved the bill on July 14. In the Schwegmann decision the U. S. Supreme Court ruled that the Miller-Tydings Amendment did not require non-signers of fair trade contracts in the various states to be bound by existing contracts signed by others if the goods in question came originally from another state. Forty-five states have fair trade acts. All of these acts have a clause which binds non-signers to contracts signed by others. The Miller-Tydings Act suspended federal law in allowing manufacturers in any state to obtain contracts from distributors in other states. However, when the court ruled that non-signers were not bound in such circumstances, fair trade fell apart. From that time on even the state courts did not support fair trade within the states in which the manufacturers were resident for the reason that this affected interstate commerce. But now the McGuire bill changes all this and causes non-signers of fair trade contracts to be bound by the contracts signed by others even though the manufacturer is not a resident of the state in question.

But there is still a fly in the ointment of fair trade which is not corrected by the McGuire Bill. This is the Federal Court decision in the Wentling case. This decision in essence allows sales to be made by distributors in interstate commerce without regard to any fair trade contracts. Under this decision, a distributor selling goods in a fair trade state is bound to maintain prices suggested by the manufacturers in their fair trade contracts, but when the same distributor sells the same goods in interstate commerce he can charge any price he chooses. This is the loophole which the American Fair Trade Council sought to have closed in the bill which they proposed, and in the Keough Amendment which they sought to have inserted in the McGuire Bill. However, this effort failed for the reason that the Bureau of Education on Fair Trade, spear-headed by Dr. John W. Dargavel, executive secretary of the National Retail Druggists Association, were of the opinion that such a bill could not be enacted. It is believed that the American Fair Trade Council will now press for amendment of the McGuire Bill at the next session of Congress.

The law as it now stands with the enactment of the McGuire Bill means that manufacturers can again force all retailers handling their goods to charge no less than the fair trade minimums specified in their fair trade contracts—except on sales shipped by a retailer in one state to a customer in another state. This interstate business is quite considerable in some lines of goods, but is not of great consequence with respect to the goods of this industry. Furthermore, the manufacturers of this industry are not too concerned with this type of sale since the principal object of fair trade, so far as drug and cosmetic manufacturers are concerned, is the prevention of their goods being used as loss leaders by retail stores. The protection of retail stores from other retail stores which are known price-cutters is the object of manufacturers in this industry.

To those who recall the enactment of the Miller-Tydings Amendment, the action of President Truman in signing the McGuire Bill into law came as a real surprise. It was necessary to make the Miller-Tydings Bill a rider on an appropriations bill which President Roosevelt had to sign in order to accomplish its enactment. At the time, President Roosevelt wrote a sharp message disapproving the Miller-Tydings Amendment and fair trade in general. The federal agencies—the Federal Trade Commission and the attorney-general's office—took their cue from this dissent and from that point on tried to foul up fair trade. It will be recalled that the government became a party to the Schwegmann litigation on the side of Schwegmann, the price-cutter. The government agencies were also represented at the hearings on the McGuire Bill as opposed to the legislation. However, President Truman said that he was signing the bill because it eliminated some unfair business practices and thereby helped small businessmen. But he asserted that fair trade laws also eliminate competitive forces which are necessary in a progressive, free enterprise economy."

The McGuire Bill amends the Federal Trade Commission Act to permit the operation of fair trade, in those states having such laws, across state lines. The law does not impose fair trade on those states which do not have such laws—Missouri, Texas, and Vermont—but it permits manufacturers in any state to operate under the fair trade act in any of the forty-five states having such laws.

The Schwegmann decision ruled that non-signers of fair trade acts were not bound by these laws when the manufacturer was resident in one state and the non-signer was resident in another state. This is overcome by the following provision of the McGuire Bill:

"Nothing contained in this Act or in any of the Antitrust Acts shall render unlawful the exercise or the enforcement of any right or right of action created by any statute, law, or public policy now or hereafter in effect in any State, Territory, or the District of Columbia, which in substance provides that willfully and knowingly advertising, offering for sale, or selling any commodity at less than the price or prescribed in such contracts or agreements, *whether the person so advertising, offering for sale, or selling is or is not a party to such a contract or agreement*, is unfair competition and actionable at the suit of any person damaged thereby." (Italics ours.)

(Continued on page 268)

Wave Sets and Hair Lacquers

by Harry Hilfer

PHOTO COURTESY L'ORLE

PROBABLY the most familiar feminine battle cry has been "My hair is simply a mess." Arranging a coiffure is apt to be a rather time consuming ritual and once arranged the woman would like to keep each strand in its proper position as long as possible. Preparations designed to fulfill such a function are therefore extremely popular and will undoubtedly continue to be so. This article will attempt to describe the various preparations of this type, but will not include the permanent wave preparations which are designed to introduce curls where needed and not to keep the hair setting in place.

Perhaps the oldest of the modern types of hair setting and still quite popular are the gum solutions. The more popular preparations utilize tragacanth, karaya and quince seed mucilages but synthetic gums such as methyl cellulose are also in use. These are the most simple types of preparations since they are simple dispersions of the gums in water containing a suitable preservative. After application the evaporated film is capable of holding the hair in place for a relatively good length of time. Their use is indicated in preparations designed to add no further oil film to the hair and after addition the hair will continue to feel normally dry and non oily. These preparations further do not add any further gloss to the hair than is normally present.

Proper choice of a film is quite important and quince seed was the most popular since the amount present in solution was able to function properly without flaking when dry. Other gums when properly formulated could be made to perform similarly but not quite as well as quince seed. Quince seed however had drawbacks as well. As compared to other gums its preparation was rather long and arduous. The extract desired is found in the hard shell of the seed and the seeds must therefore be immersed in water—cold preferably—for from twenty-four to forty-eight hours with occasional stirring so that the adhesive gum could be dispersed in the water. The seeds must then be separated from the mucilage so formed either by straining through a fine meshed cloth or by centrifuging. Perhaps the most difficult thing about quince seeds is that there is a

PHOTO COURTESY OGILVIE SISTERS

considerable variation in extractable gum concentration per unit weight of seed and a compensation must therefore be made in the seed water-ratio every time a new batch is used. In addition the seeds themselves are more subject to attack and invasion from Weevils than are other gums. In spite of its better characteristics a substitution or reformulation is constantly being sought because of these difficulties.

A second type of hair setting preparation is the oil preparation. The most simple representative of this type is mineral oil used in undiluted form. Preparations of this type depend on the oil to cause the hair strands to cling together. Variation in its properties may be controlled by the viscosity of the oil used. The low viscosity oil will not perform as well as the higher viscosity because the film on the hair shaft will be thinner and therefore possessed of a lower adhesive propensity. The inherent difficulty in preparations of this type is the introduction of an oily "feel" to the hair which is objectionable to many users. In order to compensate for this difficulty alcoholic solutions of castor oil began to appear on the market and had a good reception. Such preparations are capable of imparting a thick enough oil film to perform adequately and after evaporation of the alcohol solvent will have the hair relatively non greasy. Castor oil was chosen for the oil because of all the available fixed oils it is the only one soluble in alcohol in all proportions.

More recently preparations have appeared on the market and were accepted by the consumer where mineral oil was diluted—but by emulsifications with water. The cream hair dressings so called have virtually captured the market because such a medium allows for additional incorporation of gum and other agencies to improve the adhesive properties of the film as well.

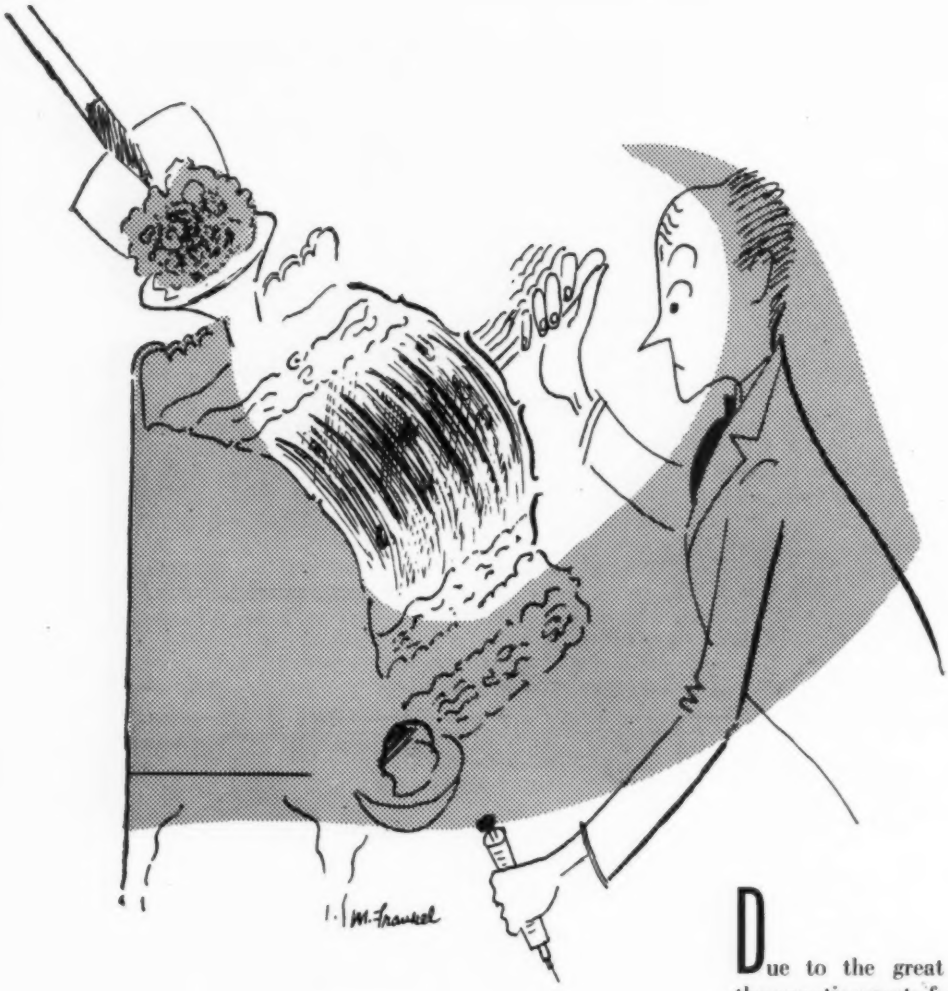
Many of these preparations are of the water-in-oil type in which relatively large amounts of lanolin may be employed. Such an addition aside from the therapeutic properties attributed to it will aid markedly in adherence. In preparations of the oil-in-water type any of the gums could be used so that longer hair settings could be obtained and without as great a danger of flaking since the presence of a relatively large oil concentration will prevent this from happening. It is the author's belief that the emulsion type of preparation offers the best possibility to the formulator for this reason.

The advent of the emulsion type is due in no small part to the increasing numbers of synthetic emulsifiers reaching the market. In addition to the well-known mono glycerides, polyethoxylated compounds which could be synthesized to any desired lipophylic-hydrophylic ratio—so that their use could be made in both oil-in-water and water-in-oil systems—have eased the path of this type of development.

Another type of agency has been left for final discussion because its use is not as great as those already mentioned, but nevertheless constitutes a sizable market. This is the hair setting preparation which actually encases the hair in what could be best described as a rigid casing and so immobilizes it. It is further designed to introduce a high gloss to the hair so that the effect verges on the theatrical. Preparations of this type are used by women who feel that their coiffures once arranged must stay that way all through the day.

These preparations are principally based on the use of shellac either in solution in alcohol or incorporated into water or a water alcohol mixture as a triethanolamine soap. Plasticizers such as castor oil or perhaps glycerine are used in the formulation to soften the film produced since the shellac film itself is inclined toward brittleness. Such a solution could be sprayed on the hair after setting and the resultant film will hold it in place. It is also used to saturate cotton pads and application made in this fashion.

The use of shellac preparations has shown a marked increase recently and mention is made of these preparations because their increased use may be the start of a new trend.



The Risks of Drug Development

Due to the great increase in the use of potent therapeutic agents for the cure of disease, the responsibility of the drug and pharmaceutical manufacturers in this country has taken on a new significance. And because of the enormous business transacted by individual manufacturers in some of these new products, the complete acceptance of this responsibility is not always pleasant or easy to assume. Further than this, very many of our large drug and pharmaceutical manufacturers are now publicly owned, and stockholders want earnings and will yell for the scalp of the management which is incumbent when anything drastic happens to these earnings.

The money spent by drug and pharmaceutical manufacturers on research to discover and develop new therapeutic agents is a most necessary expense, but such expenditures must always be considered a gamble. It is possible to have a large and costly research set-up without ever finding a really valuable new drug product. Especially has this proven to be true in one specialized field of research, namely, that of screening soil samples to discover new antibiotics. One prominent pharmaceutical manufacturer who has long been engaged in this sort of research has described the soil-screening routine as comparable to playing a slot machine. When it is considered that soil-screening has been carried on intensively by a very large number of companies for

upwards of six years and only three specialty antibiotics have found their way to the market with a fourth just about to be introduced, we can see how accurate such a description of the process is.

Then there is the possibility that some new product upon which the research department of a particular manufacturer is working will emerge from the laboratory of some competing manufacturer whose original experiments may predate those of the other manufacturer who thought he had the idea all to himself. Such was the situation that existed in the development of the new TB drug, isoniazid. Hoffmann-La Roche and Squibb both synthesized this product without any knowledge that the other had the product in mind. It was not until the dates of the experiments were exposed that either could be sure which one predated the other. As it happened, Hoffmann-La Roche was the first. Of course this was pure coincidence, but Squibb had spent upwards of a million dollars on a search for a new and effective TB drug, and just when they thought that they had an entirely new, highly efficacious product which they could offer to the medical profession, they found that someone was ahead of them.

Researchers attempting to discover new antibiotics go through a long, tedious, and very costly process and then rediscover streptomycin or another of the already known antibiotics. The head of one large such research department said about a year ago that his department had rediscovered streptomycin at least a hundred times, "only Waksman got there first."

A manufacturer may isolate a new vitamin and be working on a method of producing it in quantity only to have some other manufacturer discover an economical process first. Another manufacturer may be investing millions of dollars to synthesize a sorely needed drug only to have another manufacturer relatively quickly discover a much more economical process which might make the first manufacturer's process completely obsolete.

These are only some of the risks which drug and pharmaceutical manufacturers must assume when they engage in costly research which is vital if they want to at least keep abreast of the industry, and which is still more vital if they want to attempt to lead the parade. For in addition to the risks involved in the discovery, and synthesis or production of a new item there are the risks attendant upon the marketing of the product and upon the use of the product on a wide scale by the medical profession and the public.

After the product has been discovered and a method of manufacture developed, the product must be put through very extensive clinical trials. And true evaluation of these clinical trials is many times most difficult, and often the true evaluation of such a product cannot be made until the medical profession as a whole has used the product for some time. And quite often, the extension of use to the entire medical profession does not confirm the high promise for the product indicated by the clinical trials. Then there is the unfortunate tendency of doctors to try a new drug for all manner of conditions for which no indications have been stated by the manufacturer. This tendency on the part of doctors is difficult to understand, but the reasoning behind it seems to be that they want to be the first ones to discover a new use for a new drug, or to be the first ones to find an efficacious drug for a condition which has thus far defied effective treatment by the use of specifics.

At any stage of the process thus far described, the product may fail completely and the manufacturer may lose his business risk, or more crudely, his gamble. Then the product may prove highly efficacious but have such side-effects that it can only be used in desperate cases and then only under the supervision of specialists rather than by the entire medical profession. Under such circumstances the product is of very limited value to the medical profession and the public, and certainly it is of limited value to the manufacturer who spent so much time and money in its development. And once this product is marketed, the search is immediately started in all other research departments of drug and pharmaceutical manufacturers, as well as in medical schools and universities, to use the new drug as a starting point from which to develop an equally efficacious product without the undesirable side-effects. For once the drug and pharmaceutical manufacturers are given a clue, they work like beavers to develop an original product which is better than the one on the market.

Then there is always the possibility that after a new, highly efficacious product has been on the market for a comparatively long time, side-reactions of a most serious nature might be revealed. Two outstanding examples of this are aminopyrine and cincophen. These two products, introduced as spcialties from Germany, were widely used for many years before the development of agranulocytosis was traced to aminopyrine, and atrophy of the liver was traced to cincophen. From those times on these products declined in use to the point at which they were of little importance in the industry. And while it took quite a long time for these dangerous side-effects to be tied up with aminopyrine and cincophen, the time lapse in the discovery of serious side-effects attributed to our newer products has been greatly shortened.

The promiscuous use of new drugs by the medical profession, while opposing any over-the-counter sale of these drugs, is probably the reason that these serious side-reactions are relatively quickly uncovered. So far as the antibiotics are concerned, a most unusual situation exists in that the first antibiotic to be developed on a large scale, penicillin, has proven to be the safest as well as the one that can be most widely used. Another surprising fact is that the effective dosage of penicillin, by weight, is much lower than that of any of the others. Generally, the first of any type of a particular product to be introduced has serious drawbacks, mainly in the way of serious side-effects. This has been the rule for a great many years.

(*Continued on page 267*)

The Citronella Dilemma

by Frank Child III

Citronella oil, ordinarily one of the most widely used essential oils, and one affecting about a billion dollars' worth of trade in the perfume, soap, pharmaceutical and tobacco industries, is in a critical market condition which is continually worsening. Heavily over-produced in 1950 and 1951, prices have dropped below profit levels, say producers, and consumers are not buying. This condition has been developing since the end of World War II, and unless producer and consumer alike approach this festering problem judiciously, today's abundance may be tomorrow's scarcity.

Prior to the war, Ceylon and Java (now part of Indonesia) were the largest producers of citronella oil, judging from their exports to the United States, for in 1940 Java shipped 2,369,312 pounds of oil to this country; Ceylon, 388,218 pounds; and Guatemala, 145,055 pounds of Java-type oil. During the war the Pacific islands were ravaged mercilessly, and Java's citronella plantations, utterly destroyed. That island's industry has only now begun to stage a comeback on a competitive scale, and, today, still another island, Formosa, has entered the citronella picture.

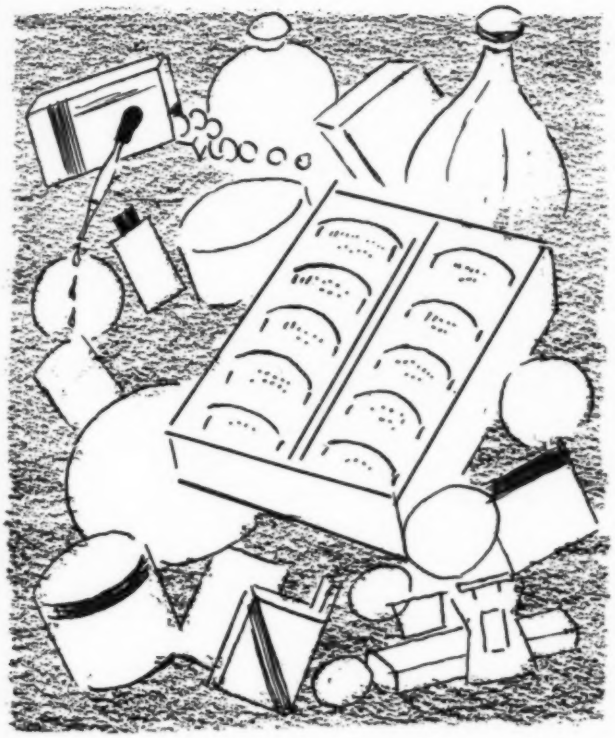
When the Communists overrode China, multitudes fled to Formosa. In order to eat, these Chinese emigres, as well as the native Formosans, had to grow rice on all the available flatlands. They purposely planted citronella on the slopes, because the grass is ideal in checking erosion. From all over the island, individual farmers collected their small yields of citronella oil in little bottles and took them to exchange centers where they traded them for money or more rice. Soon, there was a citronella boom.

Department of Commerce listings of Formosan imports into the U. S. clearly indicate the looming prevalence of oil from that quarter. In 1949 Formosa exported 85,000 pounds of oil to this country; in 1950 778,345 pounds; and in 1951, 1,010,244 pounds. During the first four months of 1952 we received 408,845 pounds from Formosa, as compared with 389,110 pounds from Guatemala and a negligible amount from Java.

The opposite table illustrates the over-all picture of citronella oil production among the important sources, and indicates the change that has been taking place.

In the early 1940's, Indonesia exported tremendous quantities to the U. S., which probably represents that country's attempt to sell as much oil as possible before shipping lanes were closed by hostilities. This table does not include other exporting countries like Mexico, Salvador, Dominican Republic, Brazil, China, Netherlands, Haiti, and the Leeward Islands, for, while they all provided consuming areas with Java-type oil, the amounts are much less than those countries listed.

While Formosa has been heavily engaged in citronella operations only during the last three years, Guatemala,



and to a lesser degree, other Central American countries, have been developing essential-oil techniques for well over 15 years. Guatemala last year was the largest exporter to the United States, and therefore must henceforth be reckoned with in respect to world supply.

One authority on Central American operations has stated that Guatemala has the potential acreage and labor supply to produce enough citronella oil to handle the entire annual demand of the United States, but of course will not carry out such a program as long as Java and Formosa remain important sources.

In fact, just the opposite has already begun to happen. Guatamalan farmers, more highly mechanized than their counterparts in Formosa, have higher machinery costs and overhead expenses to carry. With today's oil prices as low as they are, says one spokesman, they are losing about 25 cents for every pound of oil they produce. Many of them have already thrown in the sponge. They are forsaking their citronella plantations for better-paying crops, like sugar cane, beans, and corn.

In 1951, Guatemala produced 1,364,800 pounds of oil; current estimates indicate this year's output will be cut in half. The same trend is developing in Formosa where the government has bought up tremendous stock of the oil, hoping to keep the price from plummeting further. Here, too, farmers are deserting the citronella product and, in this instance, turning to rice.

If this production trend persists, and there is no reason to believe otherwise at the present time, a dire shortage in citronella oil will develop in the next few years.

During this development on the production end, there has been an equally grave series of events on the consuming end, all the more clearly emphasizing the critical nature of the problem.

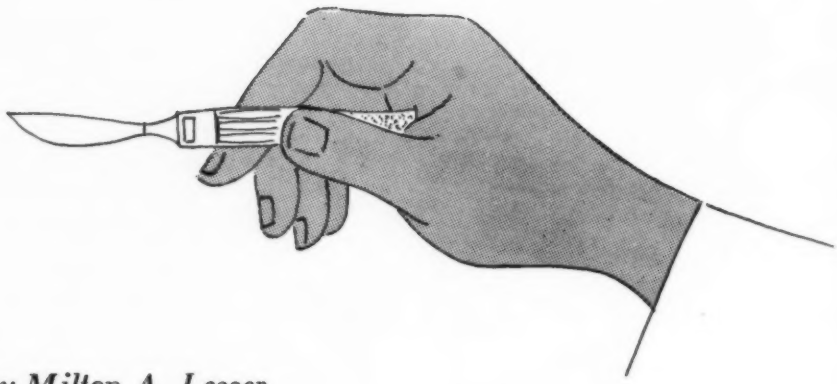
At first sight it might appear that consumers by now would be only too eager to jump in and take advantage of this great superfluity of oil and the concomitant low price (65 cents for the Java, as compared to a 1940 figure of $5, and 85 cents for the Ceylon oil) but it is not that simple, for two primary reasons. When the Korean War began in June, 1950, large consumers of citronella oil bought up twice and three times their normal yearly stocks in order to prepare for what then promised to be another era of shortages. These consumers, in many cases, are still using up their over-extended inventories. Since citronella oil is but one of many commodities they stock, the consumers are in no position today to rush into the market just because of a low price in one item, as they must maintain balanced inventories. Furthermore, owing to the

(*Continued on page 264*)

	Gualemala	*Honduras*	*Ceylon**	*Indonesia*	*Formosa*	*Total*
1951	1,164,636	36,976	220,270	52,446	1,010,244	2,549,863
1950	582,984	10,005	393,169	114,485	778,345	2,652,378
1949	676,625	51,144	293,244	165,374	85,000	1,831,551
1948	648,472	65,351	353,069	555,001		1,713,033
1947	251,095	72,439	526,750	401,880		1,340,762
1946	305,934	93,326	279,915	85,888		776,959
1945	159,336	47,428	337,097	NONE		545,594
1944	155,357	24,556	780,328	2,314		963,120
1943	111,178	5,986	236,498	1,227		354,994
1942	21,060	89	495,174	903,687		1,422,637
1941	107,125		171,619	3,973,662		4,266,675
1940	145,055		388,218	2,369,312		2,902,685

*Ceylon oil is in a class by itself. All other sources produce Java-type oil. Figures are listed in pounds.

Proteolytic Enzymes in Medicine



by Milton A. Lesser

The use of proteolytic enzymes to treat infected wounds was listed among the important scientific advances of 1951. This development, one that had resulted from many years of tedious effort, is a reflection of the way in which science is constantly seeking new weapons to fight disease. As indicated by the growing interest in the value of proteolytic enzymes for the debridement of wounds, the field of enzymology offers promise as a rich source of new additions to the medical armamentarium.

As explained by Rapp,[1] an enzyme may be considered a special kind of catalyst. Like all catalysts, enzymes merely change the rate of an already existing reaction. Although they often seem to do so, it is believed that enzymes cannot initiate a chemical reaction. Enzymes are made only by living cells, but their action is entirely independent of the presence of living cells. Enzymes for use by industry and in medicine are obtained from the pancreas, gastrointestinal tract and other organs of cattle and pigs, from certain vegetable sources, and from various fungi and bacteria. The preparation of enzymes by microorganisms for commercial use is well established[2] and a microbia enzyme preparation has proved to be particularly useful in the newer treatment of infected and necrotic wounds.

Many industrial chemical processes employ enzymes and their use is broadening. They are used, for example, to desize textiles prior to bleaching, printing and dyeing. The leather industry uses enzymes for the bating of hides and paper makers employ them to modify starches for making sizes. Certain enzymes are used in alcoholic fermentation, while others are used to clarify wines and fruit juices and to produce chill-proof beer by preventing hazing when cold. The baking industry, candy making and cheese production also employ these agents.[3]

Far more important from the viewpoint of the biologist is the statement that enzymes are the keys to life and death.[4] Rapp remarks that the biologists' interest in the enzymes is well justified since the great majority of reactions which occur in the living body to give it energy, growth, locomotion, and perception of stimuli are controlled by enzymes. Thus, the digestion and metabolism of food, a part of respiration, the action of the sense organs, the contraction of muscles, and even the propagation of nerve impulses are all due to enzymic reactions.

This close association with physiologic activities helps to explain why certain enzymes are useful medicinal agents. In discussing such therapeutic applications, Tauber[5] observes that enzyme preparations, like pancreatin, pepsin, papain, bromelin, malt diastase, and mold enzymes have been used with success in the treatment of digestive diseases and other disorders for many years. He mentions the use of Syrosinase in the treatment of poison ivy dermatitis. He notes that histaminase had been recommended for the treatment of a large number of conditions, but that the therapeutic

value of this enzyme had been questioned by several workers.

Reed[3] calls attention to the use of pancreatic lipase to increase fat absorption. He also makes note of the growing utilization of hyaluronidase. This so-called "spreading factor" facilitates the subcutaneous administration of fluids and eases the intramuscular or subcutaneous injection of various drugs.[6] Protein hydrolysates may be prepared by means of enzymes and the resulting amino acid preparations find frequent use in the treatment of nutritional deficiencies and other conditions.[7]

Many of the enzymes that have been used in medicine belong to the proteolytic group which includes pepsin, rennin, trypsin, cathepsin, peptidasis, dipeptidases and papain. The new and important enzymes, streptokinase and streptodornase also belong in this group. Proteolytic enzymes serve to break proteins down to simpler substances. Chemically, proteins are built of hundreds of amino acid residues bound to each other through peptide linkages to form long chains. As explained by Tauber,[5] all proteolytic enzymes attack peptide linkages.

The idea of using proteolytic enzymes for the debridement of wounds is not a new one.[8] Medical men have long realized that the early removal of necrotic and devitalized tissue from an infected wound or a burn is an important objective of therapy. Thus, as noted by Altemeier and his colleagues,[9] the removal of burn slough by enzyme digestion has been attempted frequently in the past with a variety of enzymes. Digestion or liquifaction of the burn eschar has been attained with some agents.

In their report on the enzymatic debridement of burn and wound sloughs, Connell and Rousselot[10] mention that papain, pepsin and trypsin have been tried for this purpose. More than a decade ago, Glasser[11] treated 58 cases of sloughing wounds with a mixture containing papain as the active agent. It digested dead tissue and hastened healing. In earlier work, Ammon[12] reported that an ointment containing pancreatin produced a healing action on wounds through the digestion of substances interfering with the healing process. More recently, considerable work has been done with purified crystalline trypsin, available from The Armour Laboratories of Chicago under the name of "Tryptar."

Attention has also been focused on the possibilities of enzymatic debridement of wounds and burns with enzymes from bacterial sources. From their work with several such agents Altemeier and his associates[9] concluded that investigators "are not looking for a single pure enzyme, but a proteinase consisting of two or more proteolytic enzymes capable of acting together to digest devitalized skin but not normal tissues."

Pertinent in this connection is the large volume of work done with mixtures of the enzymes, streptokinase and streptodornase (desoxyribonuclease). Such a mixture, called "Varidase," is provided by the Lederle Laboratories Division, American Cyanamid Co., New York City, in vials containing 100,000 units of streptokinase and 25,000 units of streptodornase in desiccated form. Two commercial preparations are available in Britain.[13] One is a preparation of streptokinase intended for intrathecal administration, in combination with streptomycin, in the treatment of tuberculous meningitis. The other is a mixture of streptokinase and streptodornase.

The Council on Pharmacy and Chemistry of the A. M. A.[14] has accepted streptokinase-streptodornase as the generic name for the mixture of these two enzymes sold under the Varidase brand name. For the sake of brevity streptokinase is referred to as SK and streptodornase as SD.[15] The mixture, obviously is called SK-SD.

Nearly 20 years have passed since Tillett and Garner[16] started the investigations which demonstrated that SK-SD may be used successfully in the topical treatment of certain acute and chronic infections and in the therapy of other diseases in which the clotting of blood or its elements produces a problem. These enzymes are produced during the active growth of certain strains of streptococci. By a process that required the solution of many problems, the enzymes are separated from the bacteria and are then purified and filtered before freezing and drying. Because they function best in a slight-alkaline solution, a buffer is included with the desiccated material to promote the maintenance of a pH of about 7.5. In order to retain the activity of SK-SD, it is necessary to store the ampoules containing the dried enzymes at a temperature of about 4°C.

The mechanisms by which SK and SD act are quite different. Streptokinase causes the lysis of clotted blood, breaking down fibrin into soluble fragments. Streptodornase catalyzes the breakdown of desoxyribonucleoprotein which constitutes a high proportion of the sediment in thick purulent exudates. With the introduction of SD there is a visible change in the coarse sediment to a thin, milky fluid of low viscosity. Thus, the combination of SK and SD, as provided in Varidase, serves as a physiologic curette or scalpel by enzymatically removing fibrin and pus. By aiding in the elimination of dead tissue and purulent exudate, SK-SD hastens tissue regrowth and healing. Furthermore, it clears the way for treatment with penicillin and other antibiotics and chemotherapeutic agents whose action is often inhibited by pus and debris.

As explained by Tillett,[18] as biological reagents the actions of these enzymes fall into three main categories: (a) mechanical, through liquifaction of the exudative substances that interfere with restoration of organic functions; (b) antibacterial, by allowing immune and other defense body mechanisms to operate in an otherwise inaccessible field; and (c) biological, by promoting the regrowth and regeneration of tissues leading to effective healing.

(*Continued on page 250*)

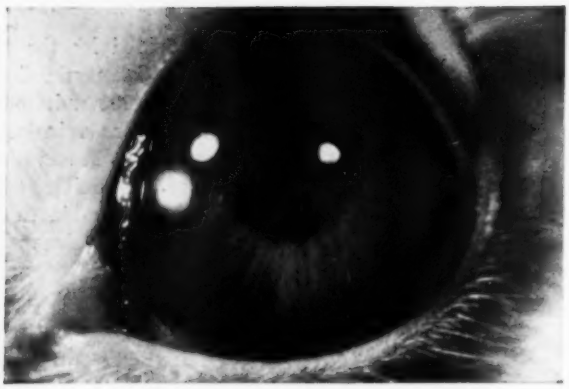


FIGURE I
Normal eye — clear, bright, lustrous

Eye Irritation and Related

by Russell A. Cain, Ph.D.
CONSULTANT AND CHIEF CHEMIST

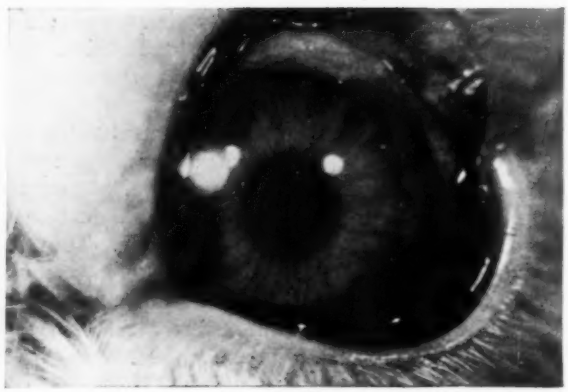


FIGURE II
Taken 1 hour after instillation of test material. Represents 13 points scored for irritation; no corneal opacity.

The attention of our industry was directed recently to an announcement by the Federal Food and Drug Administration, of the existence of a group of shampoos on the market which were found to be capable of causing permanent injury if accidentally introduced into the eye during the shampooing process. This announcement was received with considerable surprise, particularly in view of the fact that shampoos, with their long history of extensive and repeated use by multitudes of individuals, have been regarded universally as being entirely safe under the ordinary or usual conditions of use. The fact that shampoos might irritate when inadvertently introduced into the eye has been universally acknowledged. Yet to learn that a shampoo was capable of causing permanent eye injury was a new concept to many of us. In this regard it is interesting to note the testimony before the Delaney Committee of one of our most eminent dermatologists to the effect that it would not have occurred to him previously to eye-test shampoos.[1]

As a practical illustration, we recall a bit of history from our own company's long experience with shampoos and shampooing. Several years ago we had occasion to check the early records of the founder of our company, John H. Breck, Sr., and were able to determine that over one ten-year period more than 57,000 shampoos were given in conjunction with his hair and scalp treatment work, all, to the best of our knowledge, without complaint of serious eye effects. The interesting point is that these shampoos were given by the forward shampooing technique in which the patron leaned forward over the shampoo bowl. This method while ideal for efficient cleansing of the hair and scalp, did present much opportunity for accidental introduction of shampoo into the eyes. Naturally, in those days, soap shampoos were used.

Within the past two or three decades and more especially during recent years, our industry has placed greater and greater emphasis on planned research and development aimed towards the improvement of present products and the creation of new ones to meet the ever-increasing demands. In undertaking to provide more efficacious, useful and cosmetically elegant preparations there has been a constant increase in the use of some of the more recently developed chemical agents where their physical, chemical or bacteriological properties appear to greatly enhance certain formulations. The employment of these newer agents has resulted in varying degrees of formula change ranging anywhere from a relatively minor addition, or substitution, to an almost complete reconstruction of a product and in many cases the creation of an entirely new product. It is interesting to observe that the products of certain segments of the industry appear to have lent themselves to more pronounced changes than others. This is

*Delivered before Scientific Section, Toilet Goods Association, May 13, 1952.

from Shampoos Products*

and William R. Markland

RESPECTIVELY OF JOHN H. BRECK, INC.

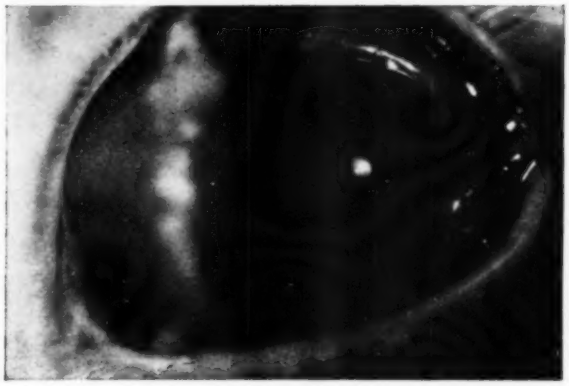


FIGURE III

The more severe of 40% Liquid Potash Soap Shampoo eyes. Taken 1 hour after instillation of material; represents 19 points scored for irritation. Shows no corneal opacity although some developed during 2nd hour.

perhaps best illustrated by shampoos as there is probably no other type of product which has undergone any more revolutionary change of formulation as a result of the application of modern scientific research.

There is little doubt concerning the tremendous impact which surfactants or synthetic detergents have had on the shampoo industry. As a general class, these materials possess excellent properties from a shampoo viewpoint. They lather well, clean thoroughly, and rinse easily and freely even in severe hard water. This latter property represents a tremendous improvement over soap which reacts adversely to water hardness by tending to coat the hair with a dull, sticky hard-water soap film. On the other hand, as is almost invariably the case with new developments, synthetic detergents presented a serious disadvantage for shampoo use in that they tended to seriously defat the hair and scalp. Recognition of this problem has resulted in its being overcome with varying degrees of success through formulation and the incorporation of additives.

The recent unfortunate situation, involving shampoos

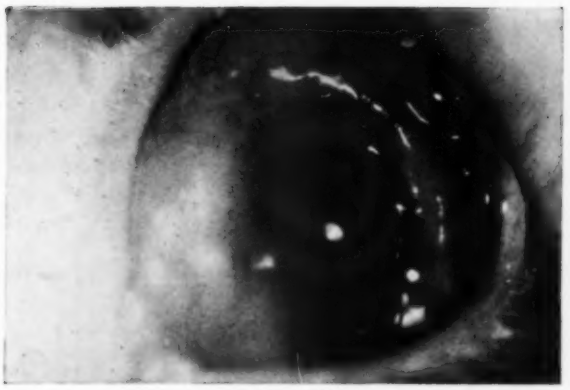


FIGURE IV

One of 3rd control eyes taken 1 hour after instillation of material. Represents 39 points of which 20 points were scored for corneal opacity.

which combined a polyoxyethylene non-ionic detergent with a high content of a quaternary ammonium compound, brings to light an additional disadvantage. It is now realized that some types of surfactants or synthetic detergents can apparently cause permanent eye damage if introduced into the eye in excessive concentrations and unsatisfactory combinations.

Needless to say this unfortunate development has caused some apprehension in the shampoo and hair preparations field as well as throughout the cosmetic industry as a whole. For this reason, it was considered of interest to report to you the results of some eye irritation studies which we have undertaken on shampoos and other hair preparations.

The testing procedure employed in these experimental studies, which were carried out by an independent laboratory, was that developed by Draize, Woodard, and Calvery.[2] In this method, a 0.1 ml. portion of the product under test was instilled into the conjunctival sac of the right eye with the left eye being allowed to serve as a normal control. After a four-second period of contact both the treated and untreated eye were

(Continued on page 239)

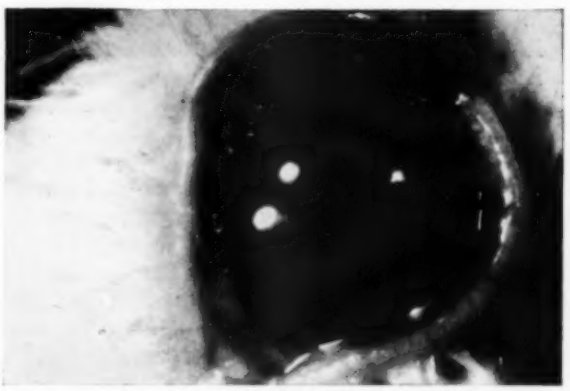


FIGURE V

Another of 3rd Control eyes. Taken on 2nd day. Represents 61 points of which 40 points were scored for corneal opacity. Corneal opacity very severe as evidenced by dullness and lack of lustre.

The Industrial Pharmaceutical Library

by W. A. Southern

LIBRARIAN, ABBOTT LABORATORIES

The pharmaceutical industry in the United States has grown from a three-hundred-million-dollar business in 1931 to a billion-dollar business in 1952. The industry is presently on the way to becoming "one of the largest industries in the United States in sales volume" according to the president of one of America's leading pharmaceutical houses. The research carried on by the pharmaceutical industry is undoubtedly an important factor in this amazing growth.

It is the responsibility of pharmaceutical research laboratories not only to develop new medicines for the benefit of mankind, but also to discover new therapeutic uses and applications for old drugs, to make improvements on old products, and to develop uses for the by-products in the drug industry. To do its job adequately the research laboratory relies heavily on its scientific library. The books and journals in the company library have been called the "lifeblood of our science." It has also been said that the "virility of the pharmaceutical industry is based on a continuing flow of new ideas put into practical application."

In an industry where there is such a great emphasis on research and development, it is readily apparent that the company library has an important role to perform. A prominent drug executive has said, "The scientific library is indeed the foundation of industry, often unseen and too often unappreciated, but it exists to provide the means and stimulation to invention and industrial development." The editor of the *American Medical Association Journal* has called the pharmaceutical library a "stimulating source of inspiration in addition to serving as a fundamental tool during the progress of research."

The collections of the libraries in the pharmaceutical industry in the United States are primarily scientific and medical, but because most of the libraries serve their entire companies, many have significant collections in the fields of business, management, production, and technology.

The industrial pharmaceutical library is a service department of the company. Its activities must be closely correlated with those of the company's program of research and development; and the library must cooperate with these departments if the full value of the library to the company is to be realized. The library's responsibilities to the company's research department are threefold:

1. The library's books and periodicals enable the scientific staff to keep up-to-date on the latest developments in the industry. In an industry

where sixty per cent of its products did not exist ten years ago and ninety per cent did not exist fifteen years go, it is extremely imperative that the research staff be alert to new developments. The rapid obsolescence of pharmaceutical products is an amazing fact to the lay public, but to the thousands of research scientists in pharmaceutical laboratories this is common knowledge and an incentive for further drug development. A company which does not move and grow with the industry today will rapidly lose its standing in the industry.

2. The library serves as a starting point for most new laboratory research projects. A systematic search of the literature will reveal to the scientist previously published knowledge on the discoveries and failures of others. Duplicate work will thus be avoided and the scientist can apply original thinking to his work and formulate new ideas as a result of his survey of the literature. It has been estimated by a pharmaceutical research executive that preliminary library research saves ten per cent of research costs.
3. Progress and development in the pharmaceutical industry is greatly dependent upon the ideas, stimulation, and inspiration of its research personnel. The company library, quite obviously, is an excellent source of ideas and inspiration for the research staff.

The library's job of gathering, sifting, cataloging, and making available information pertinent to the company's interests applies to the business, management, advertising, production, and service departments of the company as well as its scientific departments.

Library services to the non-scientific departments of the company are generally not on the same high level as service to the research departments. The majority of the pharmaceutical libraries serve the non-scientific departments through their central scientific libraries. Some libraries make no attempt to serve these departments. A few companies are fully sold on the services a library can offer its business departments and have established separate business libraries staffed by technically trained business librarians.

Pharmaceutical libraries can be of service to the non-scientific departments of their companies in the following ways:

1. As super-information bureaus. All employees of the company should not only be aware of the information and other services offered by the library, but they should be regularly reminded of and encouraged to use them. Employees should likewise rely on the company library as a clearing house for factual information. In the event that an answer to a request is not in the library, the library staff should continue its search and contact other persons in the company, outside libraries, trade associations, governmental bureaus, or other agencies which can possibly supply the information. How well this function of the library is carried out depends on the skill, imagination, and training of the librarians.
2. As store-houses of recorded information. In addition to giving the quick question-and-answer service referred to above, the library must be able to undertake extensive searches in non-scientific fields. Whether it be in the field of package development, executive health plans, drug laws, or industrial heating systems, the library should supply reports, surveys, or bibliographies on subjects requested.
3. As a special service to the company's training division. The library should cooperate with the training division by compiling reading lists and making readily available materials for use in connection with all training courses offered by the company. Persons taking courses outside the company, but sponsored by the company, should be given similar assistance in selecting and locating supplementary readings.
4. As a reader's advisory service. This service has been best developed by the large public libraries, but it has always been carried on by pharmaceutical libraries on an informal basis. A reader's advisory service involves planning reading programs on an individual basis for the purpose of self-development or professional growth. Whether the employee is seeking planned reading on supervisory techniques, secretarial development, technical report writing, conference methods, or accounting techniques in the pharmaceutical industry, the library staff should carefully work out programs of this type. The personnel department, training division, and all department heads should be well acquainted with this library service so that they will refer employees to the library for this service.

The services offered by pharmaceutical libraries are numerous and varied. Among the more important services available in most pharmaceutical libraries are the following:

1. Information Service: Answering requests for information and helping employees locate information anywhere—both in and out of the company—is the library's main job.
2. Literature Searches and Bibliographies: Searches are undertaken and bibliographies are compiled on request. In general, chemists prefer to do their own searching, but it is standard practice for the library staff to do the actual searching for other employees. Several pharmaceutical companies have literature chemists on their staff. Their duties are to search and digest the literature for the laboratory personnel, thus enabling the scientific staff to devote all of its time to the laboratory.
3. Reader's Advisory Service: Individual attention is given to persons seeking planned reading programs in connection with job development, per-

(Continued on page 265)

Surface Activity and R

by L. W. Hazleton, Ph.D.

HAZLETON LABORATORIES, FALL CHURCH, VA.

THE use of animal eyes as test subjects for both pharmacological and toxicological examination has been a well-established procedure for a great number of years. Perhaps before the dawn of present-day experimental biological sciences the effects of materials placed in human eyes was one of the most classical. The name of one of our modern drugs which traces back to antiquity is based on the observation of the pupillary dilation produced by the installation of the solanaceous drugs, and belladonna was so named because of its effect of producing beautiful ladies when the criterion of judgment was their eyes. There are well established classical methods for evaluating the effect of autonomic drugs and local anesthetics using the eye, particularly of the albino rabbit, although the guinea pig is frequently used.

For quite a number of years materials having potential industrial hazard have been "screened" on the basis of their irritant potential for eyes. This test was used to predict the possible hazard which plant employees might suffer from exposure to dusts or vapors of the various chemicals in the plant. Gases which have a very high irritant potential for the eye have been used not only in war but in peace time for the quelling of riots by the so-called tear gas bombs.

Even from this brief review it is apparent that the evaluation of irritant potential in rabbit eyes is not by any means a new technique. Various attempts have been made to standardize the criteria for evaluating the type and degree of irritation produced, and these have been reviewed elsewhere. There has been, however, rather recently a renewed interest in this field as it applies to the evaluation of cosmetic preparations and the estimate of their potential hazard to the public. This is being used both in research and development and in the enforcement by regulatory agencies.

The present discussion is not directed at a consideration of the technique of testing, the anatomy of the eye, or the nature of the injury produced by various surface active agents. These subjects have been discussed briefly before this Association previously, and there is an additional discussion to be presented at this meeting.

Quite to the contrary of the detailed discussion, every attempt will be made to keep this presentation on the

*Delivered before Scientific Section, Toilet Goods Association, May 13, 1952

FIGURE I
Normal Rabbit Eye

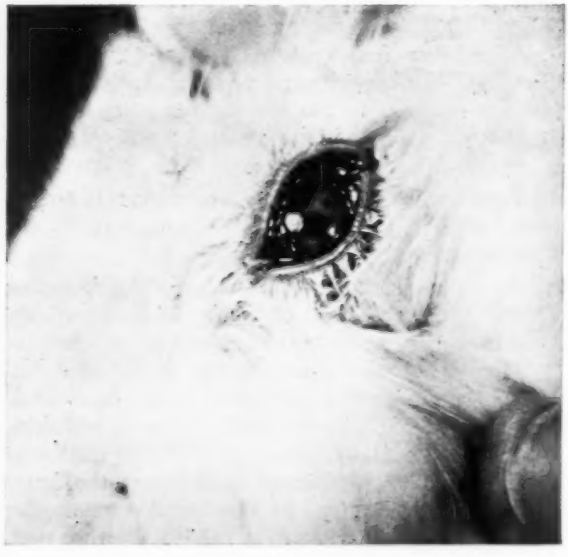


FIGURE II
Showing mild irritation

and Rabbit Eye Irritation*

basis of generalization and trends. In general, the method of evaluating injury involved local application to the eyes of rabbits and periodic observation for signs of injury. These signs include:

1. erythema and edema of the eyelids
2. erythema and edema of the nictitating membrane
3. lacrimation
4. signs of pain response
5. the incidence of opacity and
6. vascularization of the sclera and of the cornea.

A wide variety of materials has been tested in routine manner for evaluation of hazard under different use conditions, and additional numbers have been carefully investigated in the process of product development and evaluation. Only a small portion of the total number of compounds will be discussed at this time.

In selecting many of the materials to be tested and in the conduct of the determination of surface tension, wetting power, and foaming power, the Central Research Laboratories of the Atlas Powder Company have been of immeasurable assistance. For the sake of convenience in covering the various topics within the time limit afforded, the materials tested will be referred to by commercial name wherever practical, and otherwise by chemical name or laboratory identifying number. The chemical nature of these materials is available and is presented in Table No. 1.

TABLE No. 1
Chemical Nature of Cationics, Anionics, and Nonionics

Commercial Name or Laboratory No.	% Active	Chemical Nature
		CATIONICS
G-271®	35	N-soya-N-ethyl morpholinium ethosulfate
Hyamine 1622®	100	di-isobutyl phenoxy ethoxy ethyl dimethyl benzyl ammonium chloride, monohydrate
Ceepryn®	100	cetylpyridinium chloride
Emcol E607®	100	n(acyl colamino formyl-methyl) pyridinium chloride
Roccal®	50	mixture of high molecular weight alkyl-dimethyl-benzyl-ammonium chlorides
Hyamine 2389®	50-52	alkyl (C_8H_{18} to $C_{18}H_{21}$) cetyl methyl trimethyl ammonium chlorides
Isothan Q-15®	20	lauryl isoquinolinium bromide
		ANIONICS
Dupanol WAT®	50	triethanolamine salt of lauryl sulfate
Ultrawet 60L®	60	triethanolamine salt of alkyl aryl sulfonate
Armour's #600		
KOP Soap®	100	potassium coconut oil soap
Ivory Soap®	100	
		NONIONICS
Span 20®	100	sorbitan monolaurate

(Continued on page 259)

Black and white from color positives by W. Faitoute Munn

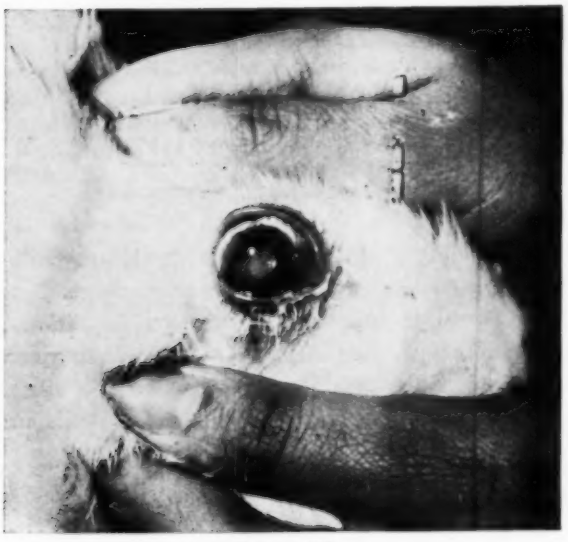


FIGURE III
Showing moderate irritation

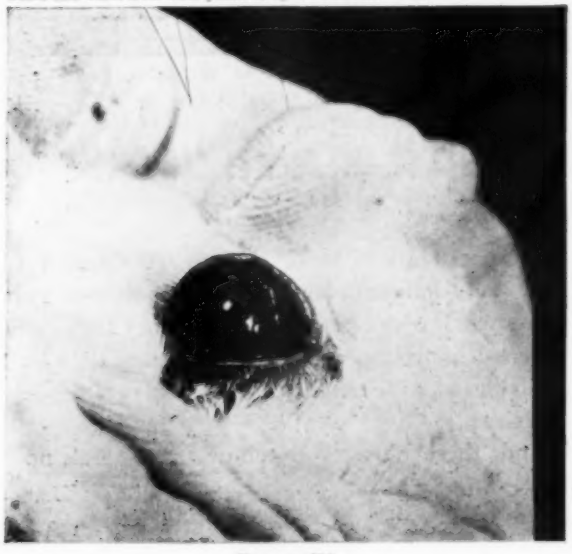


FIGURE IV
Showing severe irritation with pannus formalin

Empress molded closures give your product sales appeal . . . convenience

To cap it all with beauty-choose a molded closure

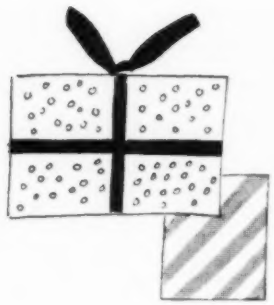
Your package will be lovely to look at . . . delightful to use when you crown it with a beautiful, new Owens-Illinois molded closure, available in a wide range of colors and sizes.

And, these closures not only give your product an appealing look that attracts attention, but they are a delight to use . . . won't rust, stick or corrode, and they give a more positive seal and reseal.

There's no freeze on individuality and ingenuity to improve the efficiency of your package. No matter what market conditions may be, plan now to keep your product in the *habit* of selling by giving it sales plus with an Owens-Illinois package.

CLOSURE DIVISION — OWENS-ILLINOIS GLASS COMPANY

TOLEDO 1, OHIO • BRANCHES IN PRINCIPAL CITIES



Packaging and Selling

To Originators, the Spoils

This industry, in both the cosmetic as well as the pharmaceutical and the proprietary groups have long observed that the pioneer who first introduces a product of merit is almost impossible to dislodge from leadership no matter how aggressive the competition which enters this market may be.

This observation is borne out by a study in the May-June issue of the Nielsen Researcher which charts the record of 11 well-known originators, each of whom did some trail blazing. These people:

1) Perfected a product and/or a package.
2) Enjoyed 100 per cent of a growing consumer usage, representing the "originators' advantage."
3) Then suffered imitation and invasion.

Of the 11 products, six were eventually out-distanced by competitors in the value of the product and/or of the package; 10 suffered from an unfavorable position as the result of a price or profit advantage by competitors; 3 were in an unfavorable position in the way of sales power and 3 were out-advertised.

Despite these important inroads extending over a period of years, the recent average share of the 11 originators was 57 per cent of the market.

Caution on Impulse Buying

One of the startling and revolutionary discoveries of market research in the last few years has been to put the finger on impulse buying, to define and classify it and to determine as closely as possible the part it plays in moving a product out of a merchant's store into a customer's home. Because of this research and the many published findings and also because of the great publicity which the impulse purchase has received, many thousands of retailers, salesmen and advertising men have moved this single factor in marketing up to a key position in all of their sales and advertising plans.

As of today there seems to be little doubt that many kinds of products, particularly products in self-service stores, depend upon as much as 50 per cent of their retail sales on a favorable display position which can take full advantage of the impulse in buying.

So predominant has the impulse factor become in a great deal of marketing thinking, that we may be approaching the time when words of caution on over-emphasis will be very much in order.

It might be that at this time a packaged ice cream can be placed in a supermarket in a favorable position and discovered, through exacting consumer testing, that fully 60 per cent of the people who purchase that ice cream had no thought or intention of buying ice cream when they first entered the store. The impulse to buy that ice cream for the family dessert or the children or for any other impulsive reason only popped into the minds of these people because they happened to see an appealing display of a product that appealed to them at that moment.

However, we should add one other factor to this chain of circumstances—at that same moment they happened to have sufficient extra money in their purse over and above family necessities and the family budget was not under pressure at that time to be used for something more important for the family.

The economists have a word for this period we are living in. They say that we are now in an economy of opulence. It would seem to us that impulse buying flourishes and is at its best in an economy of opulence. We have yet to learn what will happen to these impulses and how substantial a factor impulse buying will be when we are in a different kind of an economy; let's say the kind of an economy where a great many housewives get in the habit of counting their pennies.

While we have no question in our mind as to the potency of impulse buying as a factor in marketing and its permanent essential importance in planning, selling and advertising, we do think that marketing people should not be too enthusiastically over-rating it to the extent where they ignore, slight, forget or lose practice in the other factors that enter into the transfer of goods from a retailer's shelf to a housewife's home.

Do It Yourself!

If you want to adapt your product, your advertising or your marketing plan to a powerful human want that is exerting tremendous influence on millions of people in this country try to work in, in some way, the theme "Do it yourself."

During the last ten years the average American citizen, both man and woman, has been getting a very liberal education on how to do all sorts of things for themselves that they formerly casually employed somebody else to do for them.

A few years ago the magazine Better Homes and Gardens published an article telling the average home

KEEP YOUR POWDER DRY

in handsome Continental Containers

If your product is sold in powder form and is made for bath or other personal use, a Continental container is the safest way to package it. These efficient metal cans help keep out moisture and light—help keep powders usable. They're light in the hand, too, and plenty strong.

You can take your pick of dozens of Continental proprietary cans with all sorts of dispensing closures. Our designers are masters at giving these sturdy packages sales-winning appeal; our lithography makes them sing. For the full story, just give us a call.

CONTINENTAL CAN COMPANY

CONTINENTAL CAN BUILDING • 100 East 42nd Street, New York 17, N. Y.

EASTERN DIVISION
100 E. 42nd St., New York 17

CENTRAL DIVISION
135 So. La Salle St., Chicago 3

PACIFIC DIVISION
Russ Building, San Francisco 4

owner how to do the simple repair jobs around the house. This magazine article had one of the most compelling titles ever pinned to an article; that title was "Why not pay yourself these High Wages?" Today more than 65 per cent of the paint sold for household use is for self-application, with the rest going to professional painters. Only a few years ago the ratio to householders was 40 per cent. Anybody who has investigated the sale of sewing machines, dress patterns, tools for home workshops, books on how to do things, must be enormously impressed with the way in which Americans have become accustomed to doing so many things for themselves and the eager response that greets almost everything that contributes to the ability of the individual citizen to secure independence in many forms of services which he can no longer afford. This is a form of movement toward self-sufficiency that in a sense is completely reversing the development of the previous generation.

The cosmetic industry has contributed a notable example of the success based precisely on this principal, and that is the home permanent wave as typified by the dramatic success of Toni.

For many products and many businesses an adaptation to this enormous and hungry market may not be possible but it is becoming so potent a force in this country that nobody in selling and advertising ought to dismiss the idea without thoroughly and seriously searching for a possible application.

New York Grocers Lag

New York City retail grocers are losing out badly to the rest of the country, in the way they are getting aboard the drug and cosmetic band wagon. This is the conclusion of a study by Selling Research, Inc.

As examples, 2/3 of food stores nationally stock hand lotions and creams as against 1/4 of the New York grocers. Personal deodorants are stocked in 62.2 per cent of food stores nationally and 22.6 per cent in New York. Cleansing cream rates 58.7 per cent as against 23.1; talcum powder 58.3 as against 23.2.

The distribution of cosmetics in grocery stores is much more general than for drugs. Headache tablets have 65.2 per cent distribution nationally in food outlets but only 5.1 per cent in metropolitan New York. Cough remedy and cold tablets are 55.3 per cent and 41.5 per cent nationally as compared to 1.4 and 0.4 in the New York area.

Place of Purchase

Statistics showing the place of purchase of toiletries and cosmetics are becoming increasingly important for this industry as the various retail groups which compete for over $900 million in consumer purchases line up in a drastic battle for dominance in distribution. Illinois Daily Newspaper Markets of Springfield, Illinois, have just released a study covering 32 Illinois cities which gives a comprehensive and well-distributed study of a key state. Here is the line up in these 32 Illinois markets. The department store gets 19.9 per cent of consumer purchases for toiletries and cosmetics; drug stores 48 per cent; house-to-house 15.1 per cent; grocery stores 7.1 per cent and all others, which must include variety stores, general stores 10.2 per cent.

There is surprisingly wide variation in these 32 towns and cities and their surrounding market as to which kind of retail selling has the consumer preference. This survey gives a very clear picture which shows that very often retail dominance is not so much the kind of store as it is a question of alertness and ability on the part of the seller.

For instance, in Elgin, Illinois the department store reaches a high point of 42.5 per cent, whereas in Dixon it secures only 2 per cent of the cosmetic business and, in towns such as Cairo, Centralia, Freeport, La Salle, Lincoln, Mattoon, Olney, Ottawa, Streator and West Frankfort, department store sales all run at less than 10 per cent of the total.

The drug store reaches a high point of 71.7 per cent in Cairo and a low point of 26.3 per cent in Champaign, Urbana. There is a great deal more uniformity of drug-store sales than any other group selling cosmetics and the departure from the average of 48 per cent is less over all these cities than for the other groups.

House-to-house salesmen cover each of these cities in a fairly uniform way but in Macomb they reach a point of 34.2 per cent, cutting in so heavily on other retailers that the department stores do 11.4 per cent and drug stores, 34.9 per cent. The low of house-to-house salesmen is in Aurora where they do 5 per cent.

The grocery stores also have their high spot and in Kewanee these stores do 18.4 per cent of the business, taking practically all of this extra business away from the department stores which drop to 17.1 per cent and to the miscellaneous group which drops to 2.5 per cent. On the other hand, in Elgin, the high point of the department store, the grocery stores do only .9 per cent.

This picture gives an over-all impression of fairly steady business by drug stores, a very wide fluctuation by department stores, of a substantial growth and a substantial slice of the market by house-to-house sales people, and not quite so rapid a growth in the grocery store as has been anticipated.

Since a definition of the department store is a very elastic one and in some classifications includes small places which are more properly classified as general stores or country dry goods stores, it is, of course, obvious that in some towns where the department store makes a very poor showing that the cosmetic department in that store is a very casual one, to say the least.

Flavor is Local

Few businesses are evenly distributed over the United States and in fact very few general products have an even distribution of appeal to the American public. This is true in practically every industry. For instance, in the cosmetic business probably the one product which characteristically is popular and strong in one locality and of almost no interest to the people in other parts of the country is Sachet.

The Bureau of Advertising of the American Newspaper Publishers' Association has done a great deal of research work to demonstrate their theory that "all

Photo courtesy Parfums Ciro, Inc., New York

Custom Protection for cosmetics—the touch of elegance that adds glamorous new sales appeal

The accent is on grace, charm and rich, clean beauty when cosmetics are packaged in Kimberly-Clark Interior Packaging—KIMPAK*. Yet these parfums by Ciro show too how this amazingly versatile cellulose wadding provides real shipping protection for the most delicate glass and finely finished surfaces.

KIMPAK is wonderfully soft, sparkling clean—easy to apply as wrapping paper. In rolls, sheets or pads, it can be "tailored" to fit every cosmetic packaging need. And remember—as KIMPAK adds that distinctive touch of elegance to your package, it also guards against shock, vibration and surface damage.

Regardless of whether you make perfume, soap, lotion, face powder or lipstick, try *custom protection* with KIMPAK. It's the smart, modern way to give your product bright new sales appeal. Write to Dept. J-8, Kimberly-Clark Corporation, Neenah, Wisconsin.

KIMPAK INTERIOR PACKAGING

A Product of **Kimberly-Clark**

*T. M. REG. U. S. & FOREIGN COUNTRIES

business is local." In a recent survey of the soft drink market they cite the following facts: The outstanding market for root beer is in the five areas bordering on the Great Lakes. With slightly over 53 per cent of total family population, these areas account for more than 74 per cent of total consumption. The two best markets for cola sales are the two poorest markets for root beer.

Three of the central areas with less than one-third of total families have accounted for almost half of all lemon and lime home purchases. The West Central and North East Region has 40 per cent of the total consumption of orange drinks.

Colors that Sell

Quite a lot of research has been devoted to finding the relative merit of different colors in packaging and advertising. Now the Monsanto Chemical Company, through their plastic division, has come up with a list of the 18 most promising colors from the viewpoint of stimulating consumer sales. This selection of colors with sales appeal is based upon Monsanto's experience with their housewears Palette and also with consumer polls and other tests.

As an appeal to the mass market the following colors are recommended: Vermilion Red, a Soft Yellow, Emerald Green and a color they call Yachting Blue. A Flame Red or Cherry Red can replace Vermilion.

For the more particular customers, that is, those having a greater-than-average income, which would presume a more refined taste, the colors recommended are: Coral, Turquoise Blue, Avocado Green, Navy Blue, Copper and Brown. According to Monsanto certain colors show increasing popularity with the public. These colors are Pearl Grey, Chartreuse or Lime Green, Forest Green, Bergundy Rose and Black. There would seem to be a very logical reason that there is an increase in refinement of taste by the public in colors. The various branches of the fashion industry and particularly home decorations have for more than ten years carried on an intensive color educational program and there are very few women today who can not talk with a great deal of confidence about color matching, color harmony and the suitability and appeal of certain colors.

New Era Selling

Sales and advertising conventions nowadays are pretty much devoted to the theme that the buyers' market is on the way out and that the big problem of business from now on is to do the kind of selling that will keep our greatly increased production machine in full operation. Some interesting new sales programs for expanding sales activity are developing in line with this new thinking.

For instance, H. J. Heinz & Co. are using full page ads to promote tourist travel. The theory here is to get people to travel and eat out and the advertising will stress the good food possibilities of touring.

The National Cotton Council and Linen Supply Association is starting an advertising campaign urging people to "Go wash your face." According to medical advice it appears that the removal of perspiration and lactic acid from the skin enables the pores to "breath" again. This means that "vigorous rubbing with cotton towels stimulates circulation and speeds up the flow of oxygen to the muscles and cells, thus restoring energy."

The American Marketing Congress just listened with obvious approval to a lecture on sociology by an editor of House Beautiful. According to this editor the way to sell in the future is to get busy and study the emotional and social attitudes of people. For instance, furniture makers should know the deep underlying social values so that they will be able to predict which fashion trends will catch on and become permanent and which ones are doomed to fail, regardless of the promotional effort behind them.

It certainly looks as if selling and competition, in addition to getting more vigorous every day, is also getting more complex.

Thor Promotion

Now we've got washing machines selling cosmetics. More than 50,000 hat boxes containing $39.95 worth of cosmetics under the Patricia Stevens' names were purchased by Thor dealers, in the Thor Corporation gift promotion to sell their washing machines.

These attractively packaged cosmetics, which included creams, lipsticks, lotions and colognes were manufactured by G. Barr and C. of Chicago and the bottles and jars, together with the ceramic screening, was done by W. Braun and Co. and Glass Crafters, Inc. in Chicago.

Now It's Socks

Chlorophyll-impregnated socks are now on the market under the name "Sweet-Feet."

No-Stop Shopping

Many businessmen, in particular those in selling and advertising, have fallen so deeply in love with the big magic words of today, for instance, the supermarket, self-service and one-stop-shopping, that they have accepted these words as meaning the last final step in the mechanized distribution of this new retail era.

That there may be things still to come is indicated by a new plan just announced by a local Long Island Bank.

The Franklin National Bank of Franklin Square, Long Island, has just announced a county-wide charge account plan which has been organized to give the smaller retailers of this county the kind of credit facilities matched by the biggest stores.

If a credit system can be organized in this way to cover an entire county and the solvent retailers in this county, why isn't it just as possible to organize a parallel daily delivery service operating for all these retailers throughout the county.

Self-service is certainly not the ultimate in distribution, because looking at it from one viewpoint, it is simply a device for making the customer do all the work. The customer must go out of her way, often at inconvenient times, to get down to the store, must pick up and carry to the cash register the goods she wants and then must cart them home.

Advertising men who are delighted with the self-service idea because this puts the brand in a highly preferred position and throws practically all of the selling effort back on advertising, ought to realize a sale would be still further dependent on advertising if the customer could simply call up the drug store and say, "Send me a tube of Ipana, 100 Bayer Aspirin Tablets and a jar of Pacquins cream—Charge it and have it delivered today," and then call up the grocery store and anyone else she wants to do business with and repeat this routine. Then the retailer would be moving in the direction which relieves the customer of the inconvenience and chores of shopping and of having to do all the work distribution should do.

Some system of this sort should certainly be the ultimate objective of brand distribution and selling. But when it comes, it will mean that advertising will have a very much more rugged responsibility for creating brand recognition and brand preference in the consumers mind than they have at present. Under a system of that sort brands will not be getting very much help from store display and impulse buying.

The Winner

American business has a tendency toward concentration and it seems as if in every trade and in each product classification of that trade some one brand has a tendency to dominate that particular market.

It is rare that any one dominant brand is universally the leader in all the markets of this country. As a matter of fact an examination of the surveys of thirty or forty leading newspapers in their various metropolitan markets would show that it is very rare that the same one brand would be the top dog in each of these markets. As a matter of fact in some cases the brand that is a leader by a wide margin in a number of cities may not even appear on the list in certain other markets.

Just recently a very comprehensive survey labeled "A Continuing Study of the Southern Farm Market" and conducted by the Progressive Farmer, which for many years has covered this southern rural market, came to our attention. It is interesting to compare brand dominance in this particular market with our own opinion of what we consider the national leaders.

Face Power: 134 brands appear in this survey in which Coty, the leader, does 15.3 per cent of the business, Avon is second with 12.5 per cent, Woodbury third with 9.7 per cent and Ponds fourth with 9.0 per cent.

Bath or Talcum Powder: The Competition here is among 182 brands with Cashmere Bouquet the leader with 16.1 per cent, Avon with 13.1 per cent and Coty with 10.1 per cent.

Hand Lotion: 112 brands with Jergens out in front with a percentage of 52.7 per cent followed by Lehn & Fink (grouping Hinds, Tussy, and Dorothy Gray) with 12 per cent.

Hand Cream: Among 112 brands Avon leads with 17.5 per cent followed by Jergens 13.4 per cent and Pacquin's 10.6 per cent.

Face Cream: Ponds is the leader of the 117 brands in this field with a percentage of 24.5 followed by Woodbury 10.6 per cent, Avon 10 per cent.

Perfume, Cologne and Toilet Water: Here we find 224 identified brands giving Avon leadership with 18.6 per cent. Evening in Paris second with 12 per cent, Coty third with 8.8 per cent. Old Spice next with 4.1 per cent and then Yardley with 3.4 per cent.

Lip stick: Competing for this market are 124 brands with Avon again leading with 17.2 per cent, Tangee 13.6 per cent, Revlon 8.5 per cent and Coty 7.8 per cent.

Nail Polish: There are 58 brands in this classification with Cutex getting 32.2 per cent and Revlon 21.4 per cent.

Liquid Deodorants: 106 brands with Av9n in wide leadership at 45.9 per cent and next Odorono with 7.1 per cent.

Cream Deodorants: Leadership is pretty well divided among the 85 brands here. Mum has 28.4 per cent and Arrid 23.7 per cent.

Spray Deodorants: Stopette has this market among 65 brands with 29.1 per cent followed by Jergen's Dryad at 9.5 per cent.

Tooth Paste: Among 60 brands Colgate with 53.7 per cent and Ipana with 21.9 per cent are way in the lead; Pepsodent has 7.5 per cent of the market.

Mouth Wash: There are 82 brands here with Listerine the undisputed leader with 58.2 per cent of the business.

Shaving Soap: 68 brands are in this classification with Colgate leading with 38.2 per cent, then Williams with 19.7 per cent, then O.d Spice 6.8 per cent. Avon 4.4 per cent and Yardley 4.3 per cent.

Lather Shaving Cream: Colgate has this market also leading the 67 brands with a percentage of 36.3 followed by Williams 10.1 per cent.

Brushless Shaving Cream: Here again Colgate leads the 55 brands with a percentage of 25.6 followed by Mennen's 13.3 per cent.

Shaving Lotions: Among the 101 brands Old Spice has a narrow leadership of 15.5 per cent followed by Mennen 13.4 per cent, Woodbury's 11.7 per cent and Avon 11 per cent.

Hair Tonic: This is Vaseline's market among 108 brands they do 21.3 per cent of the business.

Hair Dressing: Wildroot reverses Vaseline's position here and takes a leadership of 18.2 per cent.

Hair Rinse: Among 38 brands Toni leads with 21.8 per cent.

Home Permanent Wave: Southern folks give Toni overwhelming leadership among the 26 brands with 70.1 per cent. Next comes Hudnut with 11.2 per cent.

Cream Shampoo: There is a close race between the two leaders among the 75 brands here; Toni with 23.7 per cent and Colgate with 22.6 per cent.

Liquid Shampoo: Among 82 brands Colgate has 29.2 per cent and Drene 21.5 per cent.

Liquid Cream Shampoo: 57 brands with Wildroot 12.3 per cent and Hudnut 10.3 per cent.

Aspirin: Among 47 brands this is Bayer's market with 64.8 per cent followed by St. Joseph 26.9 per cent.

Headache & Pain Remedies: Among 76 brands B. C. has 31 per cent and Anacin 25 per cent.

Chest Rubs: This is Vick's market out of the 76 brands with 62 per cent of the market.

Cough Syrup: This is a well-divided market. Out of 102 brands Pinex has 9.1 per cent.

Sunburn Relief: There are 119 brands here with Noxema leading at 18.5 per cent followed by Unguentine with 17.2 per cent.

S-15: 22, 24, 28, 30, 33mm and larger metal or molded caps

Calmar Plastic Sprayers

Guaranteed satisfaction in luxury colors at low cost for glass cleaners, residual type insecticides, space deodorants, medicaments, moth sprays, etc. Red, blue, green, yellow, ivory head and collar combinations.

S-20: 20mm caps only

S-10: 18mm and smaller caps only

Write for Illustrated Catalog-Price List

Your fluid products look better, sell better with colorful Calmar closures...and the cost is surprisingly economical. Write for the complete Calmar Catalog-Price List. It may suggest profitable packaging ideas.

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6800 McKinley Ave., Los Angeles 1, California

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makes toilet goods and household products

easier to use . . . easier to sell!

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No. 2

No. 5

Calmar Plastic Dispensers

These low cost attractive dispensers are featured by many leading manufacturers of hand lotions, liquid soaps, baby oils, beauty preparations, and household products. Calmar dispensers are equipped with stainless steel balls and springs. Calmar dispensers will never corrode when used with dispensable liquids not containing aromatic hydrocarbons, ketones or esters. All of the smart ivory head styles illustrated are assembled to jet black molded caps from 18mm to 33mm.

Calmar Mohair Applicator

Designed primarily for cleaning fluids, this functional closure is available in 28mm cap size with red enamel metal cover.

Calmar Atomizers

Save money yet actually improve your package with refreshingly new pastel colors. Compare Calmar's non-plugging, fine mist atomization with any metal atomizer. You will be amazed! The snow white polyethelyne mounting will never discolor or corrode.

Valveless rubber bulbs for colognes, anti-perspirants, hair preparations and products requiring the finest atomization.

Complete assembly includes matching color urea caps and rubber bulbs in your choice of Dawn Pink, Laguna Green, Light Blue and Off White. Immediate shipment of stock colors in urea cap sizes: 15-415, 18-400, 18-410, 20-410, 22-410.

Special color caps and bulbs also available. Can be mounted to your own caps.

Valve-equipped bulbs for room deodorants, hair dressings, medicaments, disinfectants and similar products.

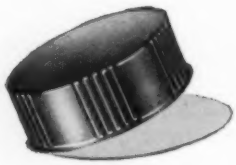
CALMAR COMPANY • 6800 McKINLEY AVENUE • LOS ANGELES 1, CALIFORNIA

Write for samples, specifying cap size and inside bottle height of your package

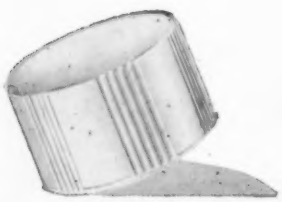
NOW... a molded cap that gives you *GREATER SPEED* on your filling lines

If the speed of your lines is being limited by cap breakage, Armstrong's "Hi-Tork" Caps can do a job for you. Their extra strength will let you step up the speed of your lines and boost your output.

The reason these heavier, tougher caps can do this is that they are built to take the torque and impact of modern high-speed lines. Parts of the cap where stress is greatest have been reinforced. And important new improvements have been made in the dome-to-skirt ratio. You'll be amazed at the punishment this cap can take without damage.



Prove for yourself what "Hi-Tork" caps can do for you. Try them on your own machines. We'll gladly help you conduct performance tests in your own plant. Just contact your near-by Armstrong office or write direct to Armstrong Cork Co., Glass and Closure Division, 1908 Prince Street, Lancaster, Penna.



ARMSTRONG'S *"HI-TORK"* CAPS

built to run faster on high-speed lines

Doings

Armour Laboratories is distributing Armazide, its brand name of Isoniazid, or isonicotinic acid hydrazide. It is being offered in the form of 50 milligram tablets for oral administration and is currently reserved for patients who have become resistant to streptomycin. Patients under Armazide therapy need not necessarily be hospitalized, but they must be under close medical supervision, since there are several contra-indications and cautions to be observed in its use.

Shulton has grouped a stick, cream and liquid together in a gift package, all in matching floral bouquet fragrance. The package includes Friendship's Garden Liquid Petals, the new cream perfume, Purse Stick Cologne, and Toilet Water.

In another package, Shulton has two charmers, Liquid Petals along with the Stick Cologne.

E. R. Squibb reports that Trigesic Tablets, a rapid-acting analgesic and antipyretic compound including acetyl-p-aminophenol, aspirin and caffeine, has been returned to the market together with Trigesic with Codeine Tablets for use on prescription.

The company is offering Rubramin (Squibb Vitamin B_{12} concentrate) in 10-cc. vials containing 100 micrograms of Vitamins B_{12} activity per cc. Bristol Laboratories announces that its oral hematinic, Mytinic Liquid now has twice the quantity of Vitamin B_{12} in each tablespoonful. It is available in 8- and 12-ounce and in 1-gallon bottles.

Schering has prepared Prantal Methylsulfate Injection, indicated in peptic ulcer and other acute conditions associated with hyperacidity or hypermotility of the stomach.

Winthrop-Stearns has introduced an improved preparation of Eye-Mo which now contains the potent vasoconstrictor Neo-Synephrine.

Also introduced is Apolamine, a compound to control nausea and vomitting stemming from a wide range of ailments (pregnancy, motion sickness, alcoholic gastritis), and Trimucolan, a new mucin-antacid preparation which reduced peptic ulcer recurrences by more than 50 per cent. The latter comes in tablet form and provides prompt symptomatic relief by creating an even, persistent coating on the ulcer and gastric mucosa.

Sales Affiliates, Inc. has introduced Inecto Color-Quick, which provides a new way to mix and apply hair coloring at home. The coloring and developer are mixed by pouring into a squeezable plastic bottle, then applied directly from a sponge fixed in the cap of the same container.

John H. Breck Inc. is offering the Breck Shampoo-Hairdress Combination Unit through August 31, entitling the consumer to a bonus of a 2½-ounce bottle of Breck Hairdress with the purchase of each 8-ounce bottle on one of the three Breck Shampoos.

Wyeth Inc. has combined penicillin and dihydrostreptomycin in a pellet for implantation in fowl to check many poultry diseases. The new combination is known as Strepels and has successfully treated sinusitis in turkeys.

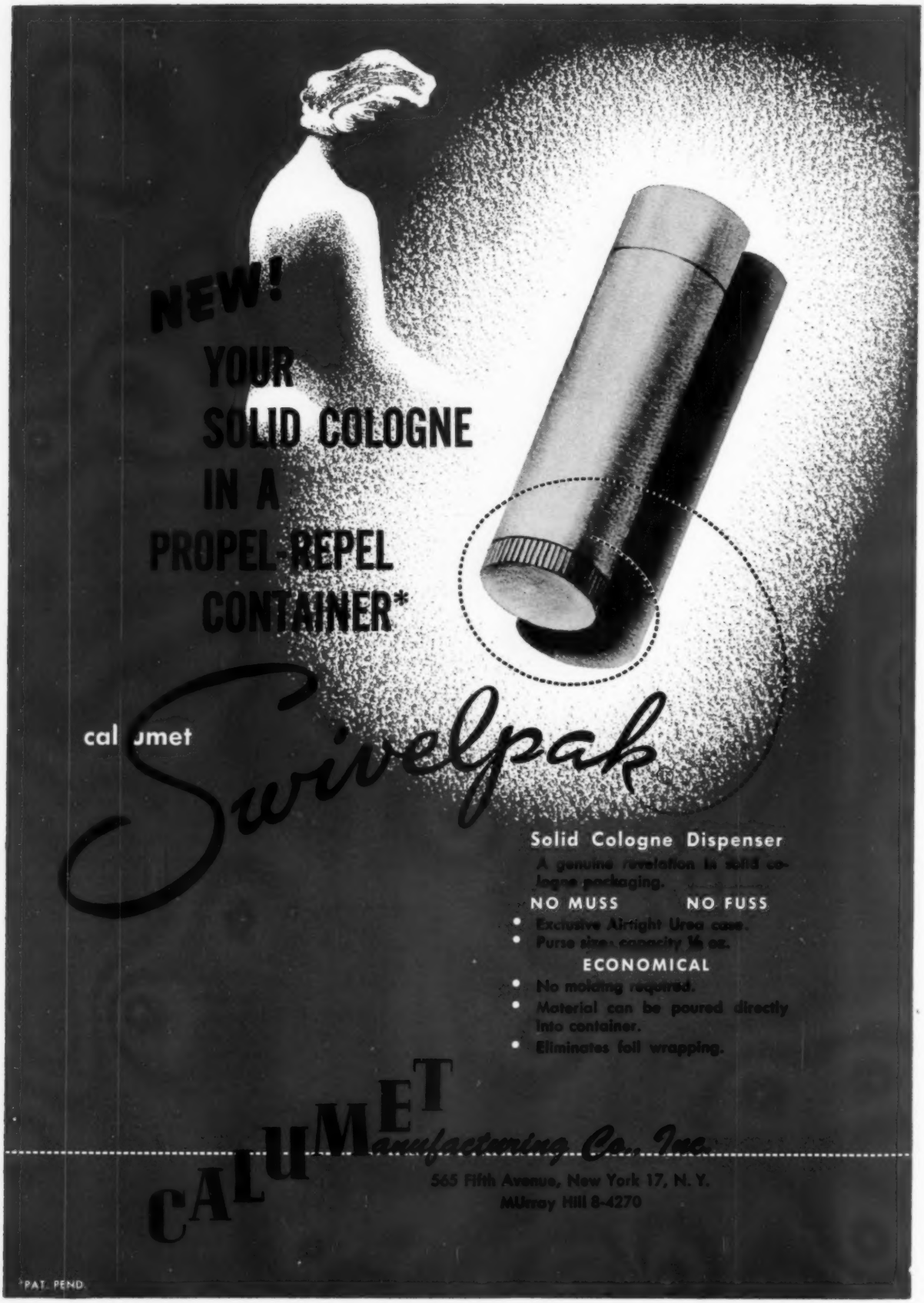
Vick Chemical Co. is distributing its cough syrup containing Cetamium on a national scale. The new cough syrup utilizes the spreading and penetrating action of Cetamium and reaches the many folds and creases of the mouth and throat that must ber eached for maximum cough relief.

Helene Pessl has added two new items to the Little Lady collection of toiletries, the Little Lady Christmas Book Package containing toilet water in a candle-shaped bottle and ten packages of bubble bath powder, and Little Lady's Atomizer Set De Luxe. This contains a large four-ounce bottle of delicately scented Little Lady Toilet Water and a cut-glass vanity bottle complete with its own atomizer unit.

Colin Pharmacal Co. has added three new products to its line of pharmaceuticals: Multitinic Tablets for rapid hemoglobin regeneration; Vanaderm, a greaseless, healing skin cream with Vitamins A and D; and Hyten with Rutin, the balanced anti-hypertension tablet.

Wyeth has introduced four new products: Cream Phenergan Hydrochloride, to combat itching in many skin disorders; Injection Wyamine Sulfate, an aqueous solution prepared for intravenous or intramuscular administration in hypotensive states not associated with hemorrhage; Phenergan Expectorant with Codeine, four cough associated with the common cold, minor infections of the upper respiratory tract, or minor throat irritations; and Phenergan Lotion with Neocalamine, also for combating itching in many skin disorders.

Schenley Laboratories has cut the dihydrostreptomycin content of Syncrobin in half in two new dosage forms. Each of the new single-dose vials now contains 0.5 grams dihydrostreptomycin sulfate, as compared with 1.0 gram in the old formula, plus 300,000 units of procaine penicillin G and 100,000 units of potassium penicillin G.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Doin's ... (CONTINUED)

Seaforth is offering a new and gala assortment of Christmas gifts for shavers, including the Fitted Travel Kit, a zippered travel kit of red and green plaid, fitted with Men's Talc, Men's Cologne, Stavo Spray Deodorant, Brushless Shave Cream, Hairdressing, and ample space for the razor. The Daily Double Set contains a 4-ounce Jug of Seaforth Shave Lotion and a choice of Veladron Brushless or Presto-Lather Shave Cream.

The third item, Groom Stick, solid after-shave lotion, is all decked out in a gay Christmas wrap.

Zonite Products Corp. has prepared Forhan's Chlorophyll Tooth paste which has a foaming action and pleasant taste.

Smith, Kline & French Laboratories has introduced Neo-Penil, a new chemical derivative of penicillin, which concentrates in certain body tissues, and provides prolonged blood and tissue levels. Each vial contains 500,000 units of penicillin G diethylaminoethyl ester hydriodide, S.K.F.

Primrose House has prepared Chiffon Cologne Stick which can be used to compliment Chiffon Perfume or Chiffon Liquid Cologne.

Modart, Inc. recently won second place in a national lithographic contest for the package design of its Modart creme shampoo.

Palestic Corp. has developed Holiday, a new outdoor lotion that completely protects users against the discomforts of insects as well as sunburn and windburn. It is non-sticky, greaseless, easy to apply, and contains essentially odorless repellents against flies, mosquitoes and other insects.

Davis & Geck has developed Melmac Orthopedic Composition, a plastic powder used in making orthopedic casts. The strength of these casts much greater than those made with conventional plaster of Paris bandages and can be up to 2/3 lighter in weight.

Stanley Drug Products is distributing Romaroid in a 50-tablet size in addition to the regular 100- and 250-tablet size. Romaroid is an internal remedy for the relief of muscular aches, pains and neuralgia.

Ammident Inc. has introduced its Amm-i-dent chlorophyll dentifrices in handy sizes for the convenience of vacationers and travelers. The 1.3-ounce size retails for 27 cents, and the 1¼-ounce powder, for 25 cents.

Lakeside Laboratories has placed Neohydrin on the market. It is an oral diuretic which works like an injection and it is sold in bottles of 50 tablets.

Matchabelli for the first time has prepared Abano Bath Oil in the easy-to-use capsule form, one capsule being sufficient for one bath. There are 18 capsules in a box, specially priced at $1 plus tax.

John Robert Powers has added a new hot-weather body lotion to his line, called "Cool and Collected." It is packaged in a spherical snow-ball display and is the first all-fluid line of cosmetics to be distributed nationally.

U.S. Vitamin Corp. has prepared a multiple vitamin-mineral capsule, Vi-Aquamin, in which the normally oil-soluble vitamins A, D and E are available in water-soluble form for more rapid, more complete, more assured absorption and utilization.

Lederle has prepared a new product for the treatment of poison ivy and kindried afflictions which is sold under the trade-mark, Rhulicream. It contains zirconium oxide but no zinc oxide.

Lady Esther is now distributing Lady Esther Talc nationally. The 3-ounce light blue can sells at 25 cents.

Walker Laboratories, Inc. has released Neomycin-Bacitracin Ointment, called Bacimycin, a colorless, stainless, soothing ointment, which creates a wide, new spectrum of antibacterial activity. This product, in the July issue, was erroneously attributed to Heyden Chemical Corp.

Chilcott Laboratories has made Methium Chloride available in 125-mg. tablets.

Colin Pharmacal Co. has also introduced three new specialty items: Vasotropin Tablets, containing the known lipotropic and oxytropic factors in carefully selected proportions, plus the capillary fragility factors, with vitamins C, D and E; Biletab Tablets, a balanced biliary regulator; and Prosan with Chlorophyll, an antiseptic powder for feminine hygiene and other uses.

George A. Breon & Co. is repackaging its entire line of medicinal products in a way which emphasizes increased legibility with block letters and black print type against an all-white background. Both the brand name and company name are in larger type than previously.

Plough recently introduced Mexsana Baby Oil with lanolin and Mexsana Antiseptic Baby Lotion. Both preparations permit normal heat radiation and do not interfere with perspiration.

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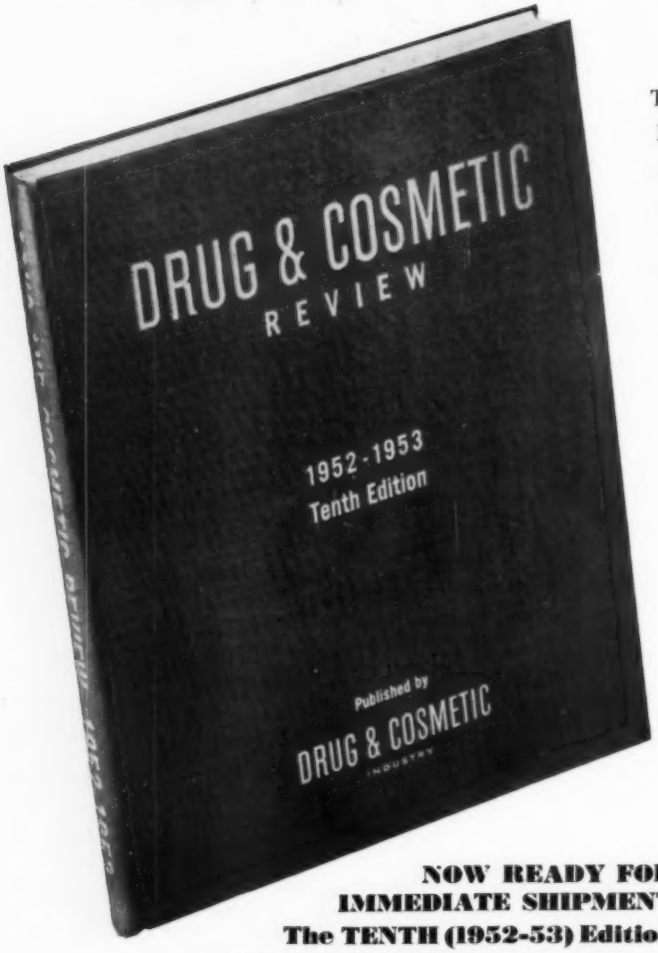
Drug & Cosmetic Review



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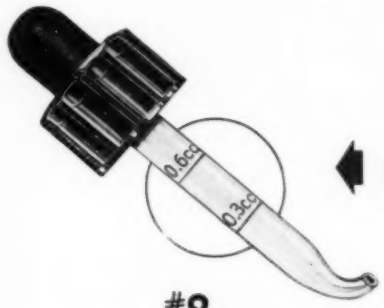
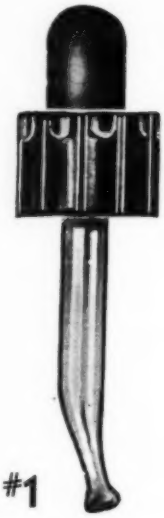
DRUG & COSMETIC INDUSTRY, 101 W. 31 ST., NEW YORK 1, N. Y.

New Perfection DROPPING PARTS



#2

ACCURATELY CALIBRATED In Any Color



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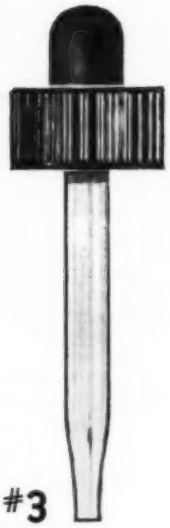


#3

#4

This Inexpensive EXTRA FEATURE Adds A Welcome Convenience To The Use of Your Product

Accurate calibration of New Perfection dropper glasses adds immeasurably to the user's satisfaction with your product. Not only is the specified dose measured with more precision, but the tedious and time-wasting practice of counting drops is made unnecessary.

Trade-marks or firm names may also be imprinted on the glass, assuring that the name will be identified with the product each time it is used.

We can supply various colors of bulbs in natural rubber or in our special oil-resisting Amekine compound, caps of plastic or metal in many sizes and colors, and various types of dropper glasses in any length. New Perfection dropping parts will fit your own bottles, or can be supplied in combination with our Modernistic bottles in Amber, Blue, Green or Clear glass. Sizes: 2 cc, ⅛, ¼, ½, 1 and 2 oz.

Write for Samples and Quotations

PENNSYLVANIA GLASS PRODUCTS CO. INC.

"Glass Goods of the Better Kind"

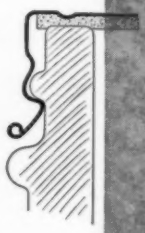
430 N. CRAIG ST. • PITTSBURGH 13, PA., U. S. A.

4 good reasons for choosing CROWN CLOSURES

1 CROWN CLOSURES SEAL BETTER

Only Crown Screw Caps have the patented Deep Hook Thread. The under-reaching grip of this thread exerts an almost vertical down-pull, providing greater sealing pressure without binding or wedging.

Crown Lug Caps, because of their flexible structure, have an even, uniformly distributed down-pull. They seal securely and are easily removed with a simple quarter-turn action.



2 CROWN LINERS ARE DEPENDABLE

In Crown Closures, great emphasis is placed on the quality and suitability of the liner for the product. Crown's years of accumulated sealing knowledge is at the disposal of customers.

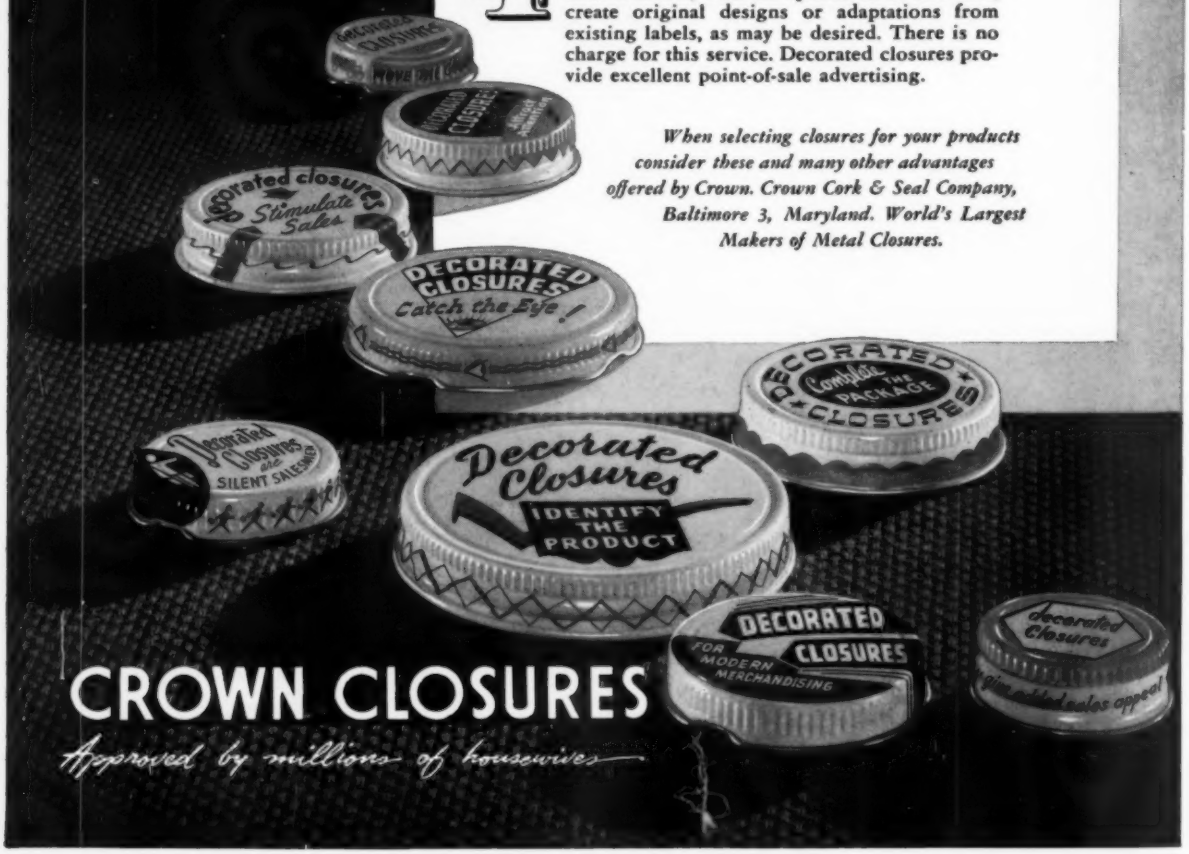
3 EXTENSIVE LABORATORY SERVICE

Crown maintains two separate laboratories. One for the research and development of improved sealing materials. The other serves exclusively as a customer's consulting service available without cost to assist them in solving processing and sealing problems.

4 SKILLED DESIGN SERVICE

Crown provides a comprehensive Design Service to develop designs for decorated closures. Crown artists, who are specialists in this field, create original designs or adaptations from existing labels, as may be desired. There is no charge for this service. Decorated closures provide excellent point-of-sale advertising.

When selecting closures for your products consider these and many other advantages offered by Crown. Crown Cork & Seal Company, Baltimore 3, Maryland. World's Largest Makers of Metal Closures.


Decorated Closures Stimulate Sales
DECORATED CLOSURES Catch the Eye!
Decorated Closures Complete the PACKAGE
Decorated Closures are SILENT SALESMEN
Decorated Closures IDENTIFY THE PRODUCT
DECORATED CLOSURES FOR MODERN MERCHANDISING
Decorated Closures

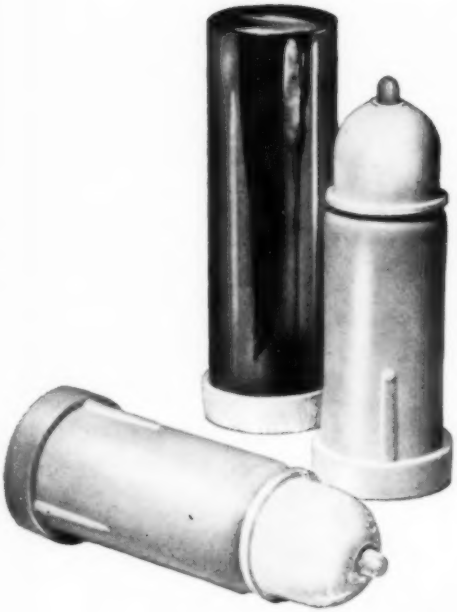
CROWN CLOSURES

Approved by millions of housewives

RICHFORD CREATIVELY ENGINEERED CONTAINERS

RICHFORD
PUSH-UP*
GOLDEN METAL
PURSE STICK CONTAINER

With the single push-up, push-back seal that permits direct filling without use of molds or foil. In 2 sizes.



RICHFORD
TOUCH-N-FLO*
PURSE DISPENSER

The perfect purse container for Lotions, Cream Sachets, Liquid Soaps, Deodorants, etc. Leak-proof plastic bottle with sure-acting dispensers covered with gold metal cap.

RICHFORD*
SPILLPROOF
PERFUME FLACONS

The magic, purse-sized perfume flacons still making sales history. Available in a number of new style-setting designs.

*Trade Marks

RICHFORD CORPORATION 251 FOURTH AVENUE NEW YORK 10, N. Y.

Merck Helps You to Promote Vitamins

"... and don't forget the VITAMINS!"
Pregnancy increases the body's vitamin requirements, particularly in the latter months. In addition, food intake may be inadequate because of the nausea and vomiting that sometimes accompany pregnancy. The use of a balanced vitamin preparation is a dependable means of counteracting deficiency states associated with pregnancy.
MERCK & CO., Inc., Rahway, N. J.—as a major manufacturer of Vitamins—serves the Medical Profession through the Pharmaceutical Industry

New professional campaign enlists the support of physicians and dentists

To bolster the promotional efforts of firms that market vitamin preparations, Merck initiated in January an advertising campaign to physicians and dentists that highlights the value of proper vitamin supplementation. New advertisements are appearing each month in 22 leading medical publications, including the *J.A.M.A.*, *Modern Medicine*, and *Medical Economics*. The journal advertising is being augmented by direct mail.

Call Merck for Vitamins

Vitamin A Palmitate
Solution of Vitamin A Palmitate in Corn Oil
Crystalline Vitamin A Acetate
Thiamine Hydrochloride U.S.P.
Thiamine Hydrochloride U.S.P. for Ampuls
Thiamine Mononitrate U.S.P.
Riboflavin U.S.P.
Calcium Pantothenate Dextrorotatory
Niacin U.S.P.
Niacinamide U.S.P.
Pyridoxine Hydrochloride
Crystalline Vitamin B_{12} U.S.P.
Triturations of Crystalline Vitamin B_{12}
Ascorbic Acid U.S.P.
Sodium Ascorbate
Alpha Tocopherol
Alpha Tocopheryl Acetate
Menadione U.S.P.
Vitamin K_1
Choline Chloride

Research and Production for the Nation's Health

MERCK & CO., INC.
Manufacturing Chemists
RAHWAY, NEW JERSEY
In Canada: MERCK & CO. Limited—Montreal

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News...

Goheen Joins Baker Chemical

Dr. Gilbert E. Goheen, formerly associate director of General Aniline and Film Corporation's central research

DR. GILBERT E. GOHEEN

laboratory, has been appointed a director of research and development by J. T. Baker Chemical Co., according to Dr. Joseph R. Stevens, vice-president and technical director.

Whiteside, V. P. Sterwin

Robert S. Whiteside has been elected vice-president of Sterwin Chemicals Inc., according to P. Val Kolb, president. He had formerly been assistant director of the company.

ROBERT S. WHITESIDE

Bristol-Myers Licensed by Rystan

Bristol-Myers Co. has become a licensee to make a chlorophyll tooth paste, according to O'Neill Ryan, Jr., president of the Rystan Co., Inc. This agreement is the fourteenth license granted by Rystan to manufacturers of chlorophyll dentifrices under the Rystan patent.

Squibb, Mathieson Merger

Thomas S. Nichols, president and chairman of Mathieson Chemical Corp., and Carleton H. Palmer, chairman of the board, and Lowell P. Weicker, president, E. R. Squibb & Sons, recently announced in a joint statement a proposed merger of Squibb into Mathieson on the basis of converting five shares of Squibb common stock into three shares of Mathieson common stock. Special meetings of the shareholders of both companies to approve the merger, as recommended by the boards of directors of both companies, will be called in the near future.

Mathieson Chemical Corp., the surviving corporation, will operate E. R. Squibb & Sons as a separate division, and will retain the name and continue the policies and standards of that company.

Carleton H. Palmer, who has been chief executive officer of Squibb for many years, will become a member of the board of directors of Mathieson and act in an advisory capacity, but will retire from active participation in the management when the merger becomes effective. Lowell P. Weicker, president, and Theodore Weicker, Jr., executive vice-president of Squibb, will also become members of the Mathieson board of directors.

A substantial part of the Mathieson stock which the Palmer and Weicker families, who control Squibb, will receive in exchange for their large holdings of Squibb stock is to be placed in a Voting Trust. The Voting Trustees will be Carleton H. Palmer, Theodore Weicker, Jr., Thomas S. Nichols and John W. Hanes, a director and officer of Olin Industries, Inc.

Atkinson Retires from Arner

Charles W. P. Atkinson, vice-president and treasurer of the Arner Co. since 1925, retired on July 1. He was tendered a testimonial dinner by company associates.

Stiles Forms New Company

John W. Stiles, formerly president, Island Equipment Corp., has resigned to form a new company, Stiles Conveyors & Transmissions, at 596 N.W. 54th St., Miami 38. The new company will act as a factory distributor for many nationally known makes of material handling equipment, conveyors, packaging machinery and transmission parts, covering the state of Florida. Sales branches are being established at Tampa and Jacksonville.

Loesch in Advisory Capacity

Kurt Loesch, vice-president and director of production, Lentheric, Inc., has been forced to curtail his activities because of failing health. From now on he will be available to the company in an advisory capacity.

Ralph C. Zehner is assuming the production responsibilities formerly held by Mr. Loesch, and had formerly acted as his assistant for a number of years.

RALPH C. ZEHNER

Goldsmith Takes Over Hadacol

Harry Goldsmith has been appointed president of Le Blanc Corp., manufacturer of Hadacol, according to Albert Hailparn, chairman of the Hadacol creditors committee, and president of Einson-Freeman. Mr. Goldsmith was president for many years of Grove Laboratories, general sales manager of American Home Products, and consultant for well known American drug

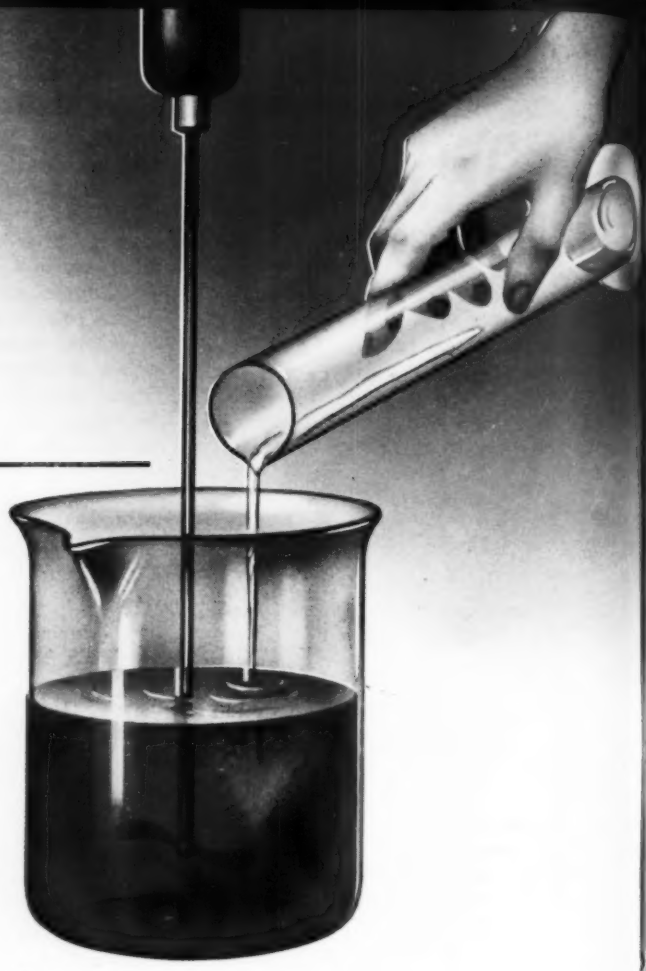
HARRY GOLDSMITH

companies, including the Borden Co.

Albert Hailparn, president, Einson-Freeman Co., and chairman of the LeBlanc Corp. Creditors committee recently explained that Mr. Goldsmith's plans for launching Hadacol promotion in early autumn call for colorful media advertising but not for a revival of Hadacol medicine show exploitation.

THE RIGHT COMBINATION...

for safe preservation of fine products



Heyden
PARASEPTS®

Consider this combination of properties offered by the Heyden Parasepts (esters of parahydroxybenzoic acid), as preservatives to protect your pharmaceuticals, cosmetics and kindred products against costly losses through spoilage:

- High effectiveness against molds and bacteria.
- Extremely low toxicity confirmed by extensive tests.
- Non-irritating to the skin.
- Colorless, odorless, practically tasteless.
- Stable during heat sterilization.

And speaking of combinations, research has shown that the use of two or even three of the Parasepts together gives better protection against microbial contamination than an equal quantity of one ester alone. There are five esters available from which a choice can be made to suit your particular product.

Write today for the new technical bulletin on the Parasepts. Samples available promptly on request.

FINE HEYDEN CHEMICALS

METHYL PARASEPT
(Methylparaben U. S. P.)

ETHYL PARASEPT

PROPYL PARASEPT
(Propylparaben U.S.P.)

BUTYL PARASEPT

BENZYL PARASEPT

Shipped in 100, 50 and 25-lb. fiber drums.

Serving Industry through Finer Chemicals

HEYDEN CHEMICAL CORPORATION
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CHICAGO • PHILADELPHIA • SAN FRANCISCO • DETROIT • PROVIDENCE

Benzaldehyde • Benzoates • Benzyl Chloride
Bromides • Chlorinated Aromatics • Creosotes
Formaldehyde • Formic Acid • Glycerophosphates
Guaiacols • Hexamethylenetetramine
Medicinal Colloids • Methylene Disalicylic Acid
Neomycin • Paraformaldehyde
Parahydroxybenzoates • Penicillin
Pentaerythritols • Propyl Gallate • Resorcinol
Salicylates • Salicylic Acid • Streptomycin

BOB ARMSTRONG

Armstrong, Goldschmidt Sales Mgr.

Bob Armstrong, formerly assistant to the vice-president of Goldschmidt Chemical Corp., was last month made sales manager. He has been with the company since 1946 and in addition served as salesman in Metropolitan New York, New Jersey, Connecticut, Philadelphia and Boston. He is first vice-president of the Cosmetic Industry Buyers and Suppliers.

Coppens, Gen'l Mgr. S&D Branch

Thomas A. Coppens, export sales representative in the Middle East, Italy and Greece, has been named general manager of Sharp & Dohme (Philippines) Inc., according to Con M. Hewitt, manager of export field operations of the parent company. He replaces A. R. Denmark, who has been promoted to the newly created position of district manager of export field operations, responsible for all operations in the Phillippines, Australia, Malaya, Siam, Hong Kong and Formosa.

David M. Burgesen has been appointed as export sales representative in the Middle East to replace Mr. Coppens.

Lederle Honored by Ecuador

Lederle Laboratories division of American Cyanamid Co. has been awarded the Garcia Moreno Medal for outstanding aid to the people of Ecuador in providing medical supplies following the earthquake in that country in 1949. The award was made by the Ecuadorian-American Chamber of Commerce at a dinner celebrating that organization's tenth anniversary in the New York Downtown Athletic Club.

In accepting the award, Robert Bogan, director of foreign sales for Lederle, declared that it was a symbol of the friendly relations which are maintained between Ecuador and the United States and also a tribute to Lederle scientists.

Johnson & Co. Established

Herman L. Johnson, Jr., formerly general manager of the House of Westmore, has formed Johnson & Co., Inc., a professional sales service in the variety store field. The company will be in full-scale operation in a short time with several national branded lines. At the present time it is handling the variety sales distribution of Helen Neushaefer, Inc. In the past seventeen years Mr. Johnson has been associated with several leading companies specializing in variety store sales. He was sales manager of Dura Gloss, general manager of Helen Neushaefer and of the House of Westmore.

HERMAN L. JOHNSON, JR.

Iso Nicotinic Acid Hydrazide

Gane & Ingram, Inc., and its affiliated company, A. Maschmeijer, Jr., Inc., have announced that a Master File number has been assigned by the Food and Drug Administration, Washington, D. C. covering their Iso Nicotinic Acid Hydrazide. This data is available to all pharmaceutical manufacturers who desire to file with the FDA on their own dosage forms.

DR. D. K. KITCHEN

Dr. Kitchen V.P., Cortez Enloe

Dr. D. K. Kitchen, formerly vice-president and chief medical counsel of Bristol-Myers, has been appointed vice-president and a director of Cortez F. Enloe, Inc. He brings to the ethical marketing and advertising fields a wide background in the proprietary and pharmaceutical industry. His experience includes ten years with Parke, Davis & Co. in special sales promotion, product development and medical research. He had been associated with Bristol-Myers at top-level management in product development, promotion planning, medical research and general administration.

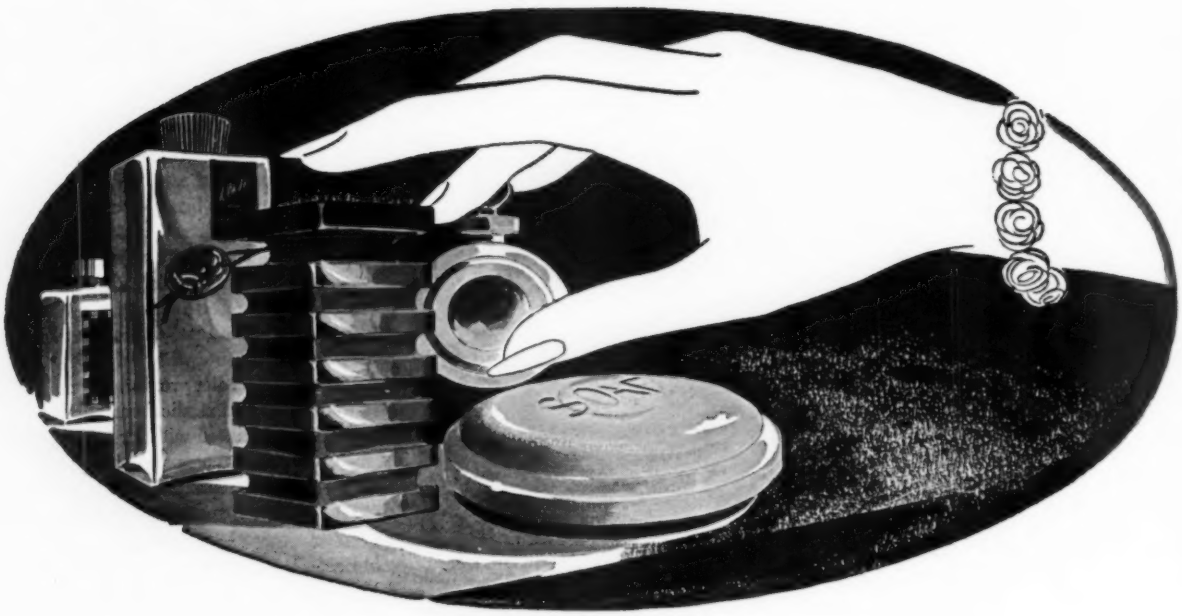
He continues as an assistant professor of dermatology and syphilology at New York University Post-Graduate Medical School.

Named Lab. Director, Parke, Davis

Dr. Alex M. Moore has been appointed laboratory director in organic chemistry of Parke, Davis & Co., according to Dr. Leon A. Sweet, vice-president and director of research.

Participating in ceremonies at which Garcia Moreno award was presented by Ecuadorian-American Chamber of Commerce to Lederle Labs. for its contribution of medical supplies to Ecuador after 1949 earthquake. Left to right: Dr. Rafael V. Lasso, secretary general, Chamber of Commerce; R. R. Diego, regional export sales manager, Lederle, who accepted award on behalf of Robert Bogan; Sr. Daniel Hickey, president, Chamber of Commerce; and His Excellency Dr. Antonio Quevedo, Ecuador Ambassador to United Nations.

MAKE CONSUMER ACCEPTANCE A "SURE THING"



DON'T COMPROMISE ON QUALITY!

There's a *profit reason* why the nation's leading producers of soaps, cosmetics and toiletries rely on VERONA as a primary source of aromatic chemicals and specialties. These leaders know that they can always bank on VERONA for the stable, high quality raw materials that *best assure* acceptance of their products at the POINT OF SALE — *proving ground of quality!*

YOU, TOO! VERONA bases will enable *your* products to *retain* their freshness of fragrance from manufacture to ultimate consumer.

Send for COMPLETE catalog . . . listing our wide range of raw materials PROVED by the LEADERS.

Sole representatives in the United States for
J. & E. SOZIO, GRASSE, FRANCE

RESINOIDES OF: Mousse de Chene Absolute Mousse de Chene Brut • Olibanum • Styrax Tolu • Opoponax

CYCLAMAL • FLORANOL
CUMIN KETONE • AMUSKAL
ALDEHYDE E-371A • IONONES
AND many other fine specialties

VERONA **AROMATICS DIVISION**

VERONA CHEMICAL COMPANY • NEWARK, NEW JERSEY

Henderson Heads Sterling (Canada)

Ralph W. Henderson, who spent six years in Windsor as a supervisor of drug manufacture, has returned to Windsor as president of Sterling Drug (Canadian) Limited and the Bayer Co., Limited, according to Henry L. Schade, chairman of the board, who had himself been president until his retirement from active management last month. Mr. Henderson has returned to Windsor from Myerstown, Pa., where since 1947 he had been divisional vice-president of Winthrop-Stearns Inc., in charge of manufacturing. He will be in active charge of all Sterling units in Windsor except Winthrop-Stearns of Canada, Ltd., which is separately operated under Charles B. McDermott, president.

Donald S. Shepherd has succeeded Mr. Henderson in Myerstown as head of the pharmaceutical manufacturing operations. He had formerly been for five years manager of the Phillips' Milk of Magnesia plant of Sterling Drug Inc.

Mr. Schade was appointed chairman of the board of Sterling Drug (Canadian) Limited and the Bayer Co., Limited last month. He will continue to serve the companies in an advisory capacity.

Named to New S & D Posts

H. C. Seawell and A. R. Denmark have been appointed to the newly created positions of district managers of export field operations, according to Con M. Hewitt, manager of export field operations of Sharp & Dohme, Inc. Mr. Seawell will be responsible for all operations in India, Pakistan, Ceylon, Egypt, Lebanon, Iran, Iraq, Switzerland and Italy. Mr. Denmark will handle the Philippines, Australia, Malaya, Siam, Hong Kong and Formosa.

Clark, Editor of Unlisted Drugs

Mildred P. Clark, librarian of Winthrop-Stearns, Inc., has become the new editor of *Unlisted Drugs* to succeed Winifred Sewell, librarian of Squibb Institute for Medical Research. The monthly publication is entering its fourth year. It supplements the important American and foreign drug encyclopedias with current information on new drugs. It has a current circulation of 350, with drug manufacturers, large pharmacies, schools of pharmacy and universities and public libraries among the present subscribers. It may be obtained at the regular subscription price of five dollars per year from Miss Mary Bonnar, librarian, Wellcome Research Laboratories, Tuckahoe 7, N. Y.

Greer with Bristol Labs.

H. Harrison Greer has been appointed to the special products division of Bristol Laboratories, according to R. A. Anderson, vice-president in charge of sales, and will make his headquarters at the executive offices at 630 Fifth Ave., New York.

FRANK E. MAPLE

CSC Merges 2 Product Divisions

Commercial Solvents Corp. has consolidated the industrial chemicals division and the animal nutrition division, according to A. K. Hamilton, vice-president of product divisions. W. Ward Jackson, previously in charge of the industrial chemicals division, will become general manager of the new combined division, although the unit will have two separate sales departments, one handling industrial chemicals and the other, animal nutrition products.

Frank E. Maple, previously assistant general manager of the industrial chemicals department. George O. Lines will continue in his present position as general sales manager of the animal nutrition unit.

Midwest Plant for Plax

Plax Corp. has started construction of a new plant in the Shively section of Louisville, Kentucky, a move which gives the company a midwestern factory for the first time. The plant, which will be taken on a long-term lease, will have 30,000 square feet of floor space.

Knoppers Training Merck Staff

Dr. Antonie Theodoor Knoppers, manager of medical services of Merck (North America) Inc., spent most of July in Brazil in order to train the staff of the company's new subsidiary, Industrias Farmaceuticas Merck (Norte Americana) S. A., and to advise Brazilian doctors on the clinical uses of the new antibiotics, according to James H. Sharp, president of Merck (North America).

Warner-Hudnut Enlarges Staff

J. Carden, E. Exner, Mrs. M. N. Nolan, W. Schoenfeld, and Dr. L. Brazay, chemists, have joined the staff of the quality control department of Warner-Hudnut, Inc. Miss R. Petgrave has been appointed to the department of pharmaceutical research.

GEORGE O. LINES

W. WARD JACKSON

Shulton Distribution Center

Shulton, Inc. recently purchased a building in Culver City, Calif., to be used as a distribution warehouse and branch office. The new quarters, twice as large as those which had been rented for the past ten years in downtown Los Angeles, will provide labor-saving production with a modern one-floor operation and pallet-type storage.

Schering Wins Safety Award

The employees of Schering Corp. received the "Certificate of Extraordinary Merit" from the New Jersey State Safety Council last month in honor of their accident-free record over the past 1,200,000 man-hours of work. The award was presented to Schering employees, supervisor and management by Fred L. Barrows, executive vice-president of the Safety Council. The Award covers the period from November 15, 1951, to June 20, 1952.

LOTION . . . *smooth but not greasy*

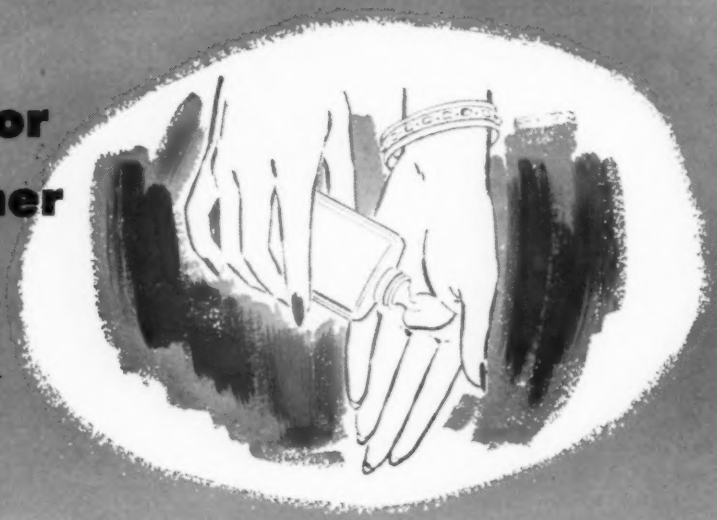
with

Methocel

a

superior

thickener



Methocel (Dow methylcellulose), N. F. Grade, offers many advantages in the preparation of superior hand lotions. As a thickener, Methocel imparts a pleasant smoothness to the product, without any uncomfortable stickiness. It is valuable as a film former, binder and suspending agent.

Methocel is neutral, bland, inert, and non-allergenic. It is completely water soluble and may be diluted with alcohol in properly prepared solutions.

Methocel is used by the cosmetic and drug industries in the preparation of hand and face creams, leg make-up, ointments, drug carrying films, surgical jellies, tablets, bulk laxatives, and in preparing emulsions of fatty, mineral and essential oils.

Investigate Methocel—send for information on its present and potential uses.

THE DOW CHEMICAL COMPANY
MIDLAND, MICHIGAN

Did you get your Experimental Sample?

The Dow Chemical Company
Department ME21 • Midland, Michigan

Wide viscosity range of Methocel available—please indicate use field _____

NAME _____ TITLE _____

FIRM _____

ADDRESS _____

CITY _____ STATE _____

DOW
CHEMICALS

Miss Onshuus Visiting Baker Chem.

Inger Onshuus, of Norway, and employed by A/S Farmaceutisk Industri, where she is a production worker in the firm's organic synthesis laboratory and assistant to the chief chemist in charge of new medicine development, is now in the United States, under the Mutual Security Agency Program. Reading about the MSA's program in a Norwegian newspaper, she made application, was accepted, and is now working for J. T. Baker Chemical Co., for an 8-month period, after which she will return home. She is now working on Baker's antibiotic research program, centered around the testing of soil samples from all over the world.

Miss Onshuus' expenses are being paid by MSA on the strength that the knowledge she gains at Baker will aid in furthering Western Europe's technical know-how.

Inger Onshuus, who recently came to U. S. from Norway under Mutual Security Agency Program, discussing antibiotic research with Dr. Joseph R. Stevens, vice-president and technical director of J. T. Baker Chemical Co. She was assigned to Baker by the M.S.A.

Rohman with Sapery

Andrew Rohman has joined the sales force of Stanley Sapery Co.

RICHARD E. KERESEY

Keresey Joins Squibb

Richard E. Keresey has been elected vice-president and general attorney, according to Carleton H. Palmer, chairman of the board, E. R. Squibb & Sons.

Lau Promoted by Parke, Davis

E. F. Lau has been promoted to assistant superintendent of the antibiotic division of Parke, Davis & Co., according to Earl W. Walke, director of U. S. and Canadian production.

Heyden Moves Phila. Office

The Philadelphia branch sales office of Heyden Chemical Corp., located for the past six years at 1700 Walnut St., moved on July 8 to new quarters in the Lincoln-Liberty Building at the corner of Broad and Chestnut Streets, Philadelphia 7. The new telephone number is Locust 4-6075.

Arnold Receives Medal

Henry A. Arnold, president of E. R. Squibb & sons of Argentina, has been awarded the University of Colorado's George Norlin achievement medal for his "Outstanding achievements in the fields of business, finance, and diplomatic relations" among the United States and Latin America. He has been with Squibb since 1949.

Kassel with Lady Esther

Jack Kassel has joined Lady Esther, Ltd. as assistant to the general sales manager, according to Dr. Joseph Schultz, president.

ROBERT HARRIS

Appointed by Toni

Robert Harris has been appointed brand manager for Tonette children's home permanent and Toni Spin Curlers, according to Wilmore H. Miller, vice-president in charge of home permanent brands for the Toni division of the Gilette Co. At the same time, Clark J. Gutman was named to succeed Mr. Harris as sales promotion manager.

Pfizer Mfg. Subsidiary in Brazil

Chas. Pfizer & Co. has established a subsidiary in Brazil, Pfizer Inter-American, S. A., which will process and distribute antibiotics and other pharmaceutical products, according to John E. McKeen and John J. Powers, president and vice-president, respectively. With a plant for the subdividing and processing of Pfizer products in Sao Paulo and headquarters in Rio de Janeiro, Pfizer Inter-American will soon be distributing its own penicillin, terramycin and dihydrostreptomycin to medical centers in Brazil. The subsidiary will also distribute antibiotic feed supplements containing penicillin and terramycin, veterinary antibiotic products, and the Pfizer line of fine chemicals for the food and pharmaceutical industries.

Furslan Laboratories had previously distributed the Pfizer antibiotics in Brazil, but recently arrangements were made with that company to collaborate with Pfizer in the establishment of the new company.

CLARK J. GUTMAN

Wes Combs, vice-president, Erwin-Wasey, reviewing Daggett & Ramsdell advertising plans with Zonite's general sales manager, Bob Buckalew, and D & R's president, Arthur Weglein. Daggett & Ramsdell is increasing advertising effort in connection with merger of sales force with Zonite Products. Zonite will handle D & R's sales, service in U. S.

Baker to Manufacture Dextran

J. T. Baker plans to begin large-scale manufacture of dextran at its main plant in Phillipsburg, N. J. in a short time, according to Marion W. Smith, president, who stated that all of the material will go to the U. S. Government for use in this country and overseas.

Tasley Heads New Brokerage Firm

James E. Tasley, Emmet O'Neill, John F. O'Neill, Eric Kerry and Edward H. Conklin have formed the new company, Tasley, L'Neill, Kerry & Conklin, Inc. It will serve as domestic and foreign brokers and agents for oils, fats, cakes and meals from vegetable, animal and fish sources.

Mr. Tasley, president of the new company, has been an importer and exporter of raw materials for 25 years and acted as consultant to the Import Export division of the War Production Board in 1943. Mr. Kerry, vice-president, has for the past 15 years been a selling executive in the handling of vitamin oils and fish liver oils, among other products. Mr. Conklin, manager of the New York office, has been a domestic and import broker for the past 25 years handling foreign products, principally dried eggs, oils and raw products. The O'Neills, who will comanage the Chicago office, have been connected with the T. E. O'Neill company, Chicago, for five and ten years, respectively.

Bjorksten Office in Washington

Bjorksten Research Laboratories has established an office in Washington, D. C., principally as a center for literature research in the libraries of the Patent Office, the Library of Congress, and other Washington depositories, according to Dr. Johan Bjorksten, president. The office is under the direction of James W. Perry, director of literature research of the Laboratories, while Henry C. Tovey is attached to the Washington office as literature chemist.

HENRY A. HENNEBEUL

Morehouse Enlarging Facilities

Morehouse Industries began preliminary excavating and foundation work last month for plant expansion. A new building next to the present headquarters will comprise about 10,000 square feet, and will house the laboratory and machine shop, greatly increasing research facilities and doubling the plant capacity.

Furman Marks 50th Yr. with Heyden

Preston Furman, Heyden Chemical Corp. sales representative, was honored last month by executives on completion of 50 years of continuous service, of which 32 have been in the sales department, covering the state of New Jersey and other territories.

John P. Remensnyder, president, presented Mr. Furman with a $1,000 coupon-type U.S. Government bond at a luncheon in his honor during which he was elected the first member of the Heyden Fifty Year Club.

Become Breon Regional Managers

Thomas E. Landry has been named regional sales manager of the southeastern states for George A. Breon & Co. and will make his headquarters at 152 Peters St., S. W., Atlanta. He will be assisted by H. W. Fowler, operating from Greenville, S. C. Mr. Landry will direct sales of Breon injectible preparations to hospitals, physicians and the drug trade in that area.

C. B. Drolsbaugh, who becomes regional manager of the Northeast sales area, will maintain headquarters in the Breon office at 33 Riverside Ave., Rensselaer, N. Y. He will be assisted by Spencer W. Smith, located in Philadelphia.

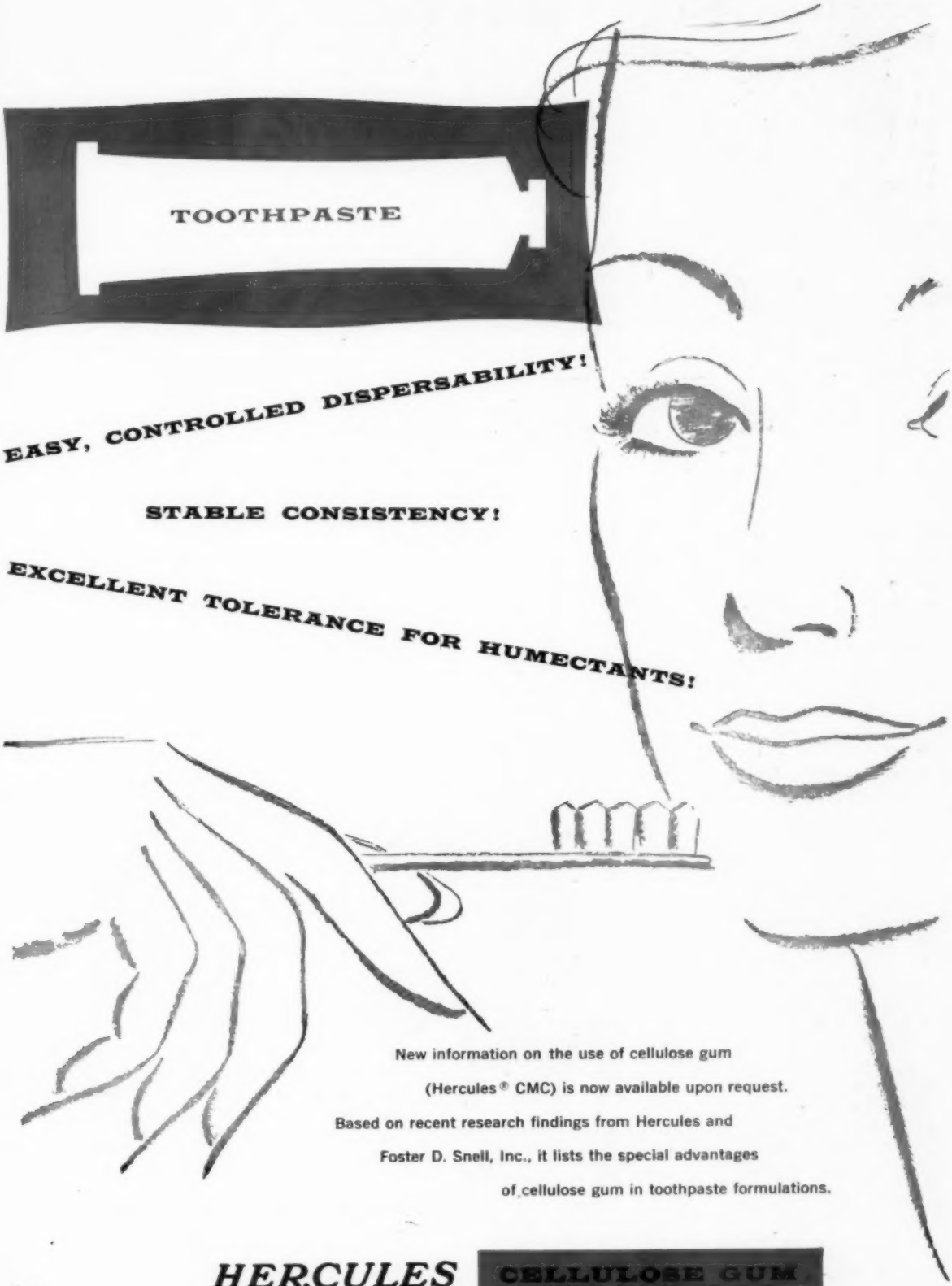
Westmore Appointments

Henry A. Hennebeul has been appointed general manager of the House of Westmore Inc., and Melvin Finkelstein has been named sales manager.

MELVIN FINKLESTEIN

Baker Moves Chicago Warehousing

J. T. Baker Chemical Co. has moved its Chicago warehousing facilities to new and expanded quarters at 2509 West Cermak Rd. in order to improve the distribution in the Mid-West. The company will retain its branch office at 435 North Michigan Ave., where all correspondence will continue to be handled.



EASY, CONTROLLED DISPERSABILITY!

STABLE CONSISTENCY!

EXCELLENT TOLERANCE FOR HUMECTANTS!

New information on the use of cellulose gum (Hercules® CMC) is now available upon request. Based on recent research findings from Hercules and Foster D. Snell, Inc., it lists the special advantages of cellulose gum in toothpaste formulations.

HERCULES CELLULOSE GUM

HERCULES POWDER COMPANY Cellulose Products Department, 977 Market Street, Wilmington 99, Delaware

CM52-14

Fragrant beauty
helps determine
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The constant creative effort
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enables us to supply the
original compositions, aromatic
bases and other necessary perfume
materials to solve any problem
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Founded 1889 by Alois Von Isakovics
Synfleur SCIENTIFIC LABORATORIES, INC.
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ORIES, INC.
O, N. Y.
San Jose
Montevideo

T. P. DEFARKAS

ROBERT L. RICE

HOMER E. STAVELY

Sammer on European Trip

Hans Sammer, sales manager of Peder Devold Oil division, Chas. L. Huisking & Co., Inc., left on a business trip July 11 to Europe and will visit various manufacturers whose products Huisking distributes in America and other parts of the world. He will also call on the associate companies, Peder Devold Co. Ltd. Aalesund, Norway and Wheeler & Huisking Ltd. London.

Crystal Expands Facilities

Charles B. Crystal Co., Inc. has doubled the former capacity of its warehouse and plant facilities in Jersey City. Additional materials handling equipment has also been added.

D&O Awarded Certificate by NYC

Dodge & Olcott, Inc. recently received the "Certificate of Business Merit" under the signature of Mayor Vincent Impellitteri and Walter T. Shirley, Commissioner of Commerce. The certificate reads, "The City of New York proclaims Signal Honor and Recognition To Dodge & Olcott, Inc. for eminent community service; for distinguished contribution to the economic welfare of the people of the City of New York and for playing a vital role in the commercial development of the City of New York for more than One Hundred Years."

The certificate was accepted by Joseph F. Rudolph, Dodge & Olcott president.

Long Appointed by Ciba

Gerald L. Long has been appointed assistant advertising manager of Ciba Pharmaceutical Products, Inc., according to Vincent A. Burgher, vice-president in charge of sales and advertising, and will be primarily concerned with developing and creative phases of Ciba's advertising program. He had been formerly associated with E. R. Squibb & Sons as manager of the professional advertising department.

CSC Consolidates Sales Activities

T. P. DeFarkas has been appointed general manager of C. S. C. Pharmaceuticals division, under which domestic and foreign pharmaceutical marketing activities of Commercial Solvents Corp. have been consolidated, according to A. K. Hamilton, vice-president of product divisions. Thomas R. Callery will continue in the capacity of assistant general manager, and Robert L. Rice has been appointed sales manager of that division. Mr. Rice is now located in the new general offices of the company at 260 Madison Ave., New York.

JAMES F. BALLARD

Ballard, Mgr., Phillips Plant

James F. Ballard has been appointed manager of the Phillips' Milk of Magnesia manufacturing operations at Gulfport, Miss., according to O. W. Ergenzinger, vice-president of Sterling Drug Inc., in charge of the Chas. H. Phillips Co. division.

Kimbriel on Fair Trade Comm.

Harry A. Kimbriel, vice-president in charge of marketing of Eli Lilly & Co., has been elected to the steering committee of the Bureau of Education on Fair Trade, according to Dr. John W. Dargavel, chairman. He is filling the vacancy left by the retirement of Earl S. Retter, Lilly vice-president.

Stavely Appointed by CSC

Dr. Homer E. Stavely has been appointed director of pharmaceutical research, Commercial Solvents Corp., to fill the vacancy created by the resignation of Dr. Fred H. Schultz, Jr. For the past 3½ years he has been head of the pharmaceutical chemistry department of the pharmaceutical research division.

Dodd Appointed by Schering

James P. Dodd has been appointed assistant manager of the sales and and merchandizing department of Schering Corp., according to Dr. John N. McDonnell, vice-president. He has been hospital supervisor of the company's western division since 1950.

Named Parke, Davis Field Managers

William E. Brackman has been appointed field manager for the Pittsburgh branch of Parke, Davis & Co., and Frank W. Errigo, field manager for the Atlanta branch, according to Carl Johnson, U. S. sales manager.

Join Midwest Pharm. Advg. Club

John L. Scott, G. D. Searle & Co., and membership chairman of the Midwest Pharmaceutical Advertising Club, has announced that 10 new members have been elected to the club, making the full membership add up to 80. The Club is about six months old.

The new members include Peter H. Rigney and Steven K. Herlitz, of Steven K. Kerlitz, Inc.; Albert W. Wilber, the Stuart Co.; George R. Bantin, J. B. Roerig & Co.; A. J. W. LeBien, Eli Lilly & Co.; Alfred L. Harding, Flint, Eaton & Co.; Robert A. O'Malley, and R. Joseph McIntyre and O. M. Onesty, *American Druggist;* and John J. Walsh, *Drug Topics.*

Pharmaceutical advertising men interested in joining this club are invited to contact Mr. Scott in care of G. D. Searle & Co., Skokie, Ill.

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today's demand

for

solid fragrance?

The vogue for Solid Perfumes, Colognes,
Essences, Deodorants, etc., has increased to a degree where the
trend-conscious manufacturer of toiletries should have
them in his line. We have pioneered
and successfully established special perfumes of exceptional effusion,
exquisite bouquet and unusual persistence for these products.
We offer you complete cooperation in the development of solid fragrances —
from the stick itself to the most intriguing odor for it.

For further details — simply write your name and address on the border of this ad and mail it to us today!

FELTON CHEMICAL COMPANY, INC.
599 Johnson Ave., Brooklyn 37, N.Y.

Sales Offices: Atlanta • Boston • Chicago • Dallas
Philadelphia • St. Louis • Toledo • Toronto
Stocks carried in Principal Cities.
Plants: Brooklyn, N.Y.•Los Angeles, Cal.•Montreal, Que.•Paris, France

AROMATIC CHEMICALS • ESSENTIAL OILS • PERFUME OILS • FLAVORS

Rubinstein Moves to New Quarters

Helena Rubinstein has moved its entire Long Island City factory and the 150-person accounting office at the Fifth Ave. salon to the company's new specially designed, modern two-story brick and glass factory and executive office at East Hills, Roslyn, L. I. Formal opening of the plant is scheduled for next month. During the 3-month operation, not a day of production was lost in any department, in spite of the fact that more than 700 persons and thousands of pieces of machinery and equipment were involved. In order to facilitate operation Dr. E. J. Masters, factory manager, and Mike Krasilousky, of the Krasilousky Trucking and Millwright Co., worked out a moving schedule and program which included vacation periods for entire departments at a time, and a non-stop shuttling of trucks and trailers between the two factories on a two-shift schedule from 8 A.M. to past midnight every day of the week.

The factory totals 320,000 square feet, with the first floor housing the filling and finishing departments, the finished stock and shipping departments, warehouse space for supplies in containers, and the boiler room.

The executive offices and accounting department will be on the second floor, along with the raw materials storage space, and a cafeteria covering 5,000 square feet.

Tanks for mineral oil and alcohol are buried in the ground, and part of the 20 acres will be devoted to the cultivation of certain vegetables essential to formulas.

Brehm Promoted by Snyder Tool

Robert L. Brehm has been advanced to the position of assistant chief engineer of Snyder Tool & Engineering Co. and its subsidiary, Arthur Colton Co., according to G. H. Whitehouse, vice-president.

ROBERT L. BREHM

Field Appointed by Whiting

Edmund E. Field, Jr. has been appointed vice-president in charge of sales of C. R. Whiting Co., Inc., according to Frank Friedlander, president.

Breon Appointments

Sidney A. Planchard has been named southwest regional sales manager of George A. Breon & Co., with headquarters in Dallas, according to Frederick O. S. Spencer, vice-president in charge of sales. L. J. Clarke has become assistant regional sales manager in the central U. S. for Breon, and Clyde A. Johnson has been appointed regional sales manager of the same territory.

Willie in New Toni Post

Walter G. Willie has been appointed to the newly-created position of assistant general sales manager of the Toni division of the Gillette Co., according to Stuart K. Hensley, general sales manager. He had formerly been western regional manager.

WALTER G. WILLIE

Chamberlain with SKF Labs.

Dr. Robert E. Chamberlain has joined the research and development laboratories of Smith, Kline & French Laboratories as a senior microbiologist. He will assist R. J. Ferlauto, microbiology section head, in the handling and planning of the development phases of the microbiology section's work.

New Officers for Library Ass'n

Winifred Sewell, librarian, Squibb Institute for Medical Research, was elected chairman of the pharmaceutical section of the Special Libraries Association at its recent conference held at the Hotel Statler in New York. Additional elections were those of Mary Devereaux, librarian, Mead Johnson & Co., as vice-chairman and chairman-elect; Hanni-Lore Levi, librarian, Squibb Institute, secretary; and Mary Bonnar, Wellcome Research Laboratories, as treasurer.

ROBERT P. HERON

Innis, Speiden Appointments

Robert P. Heron has been appointed manager of the Philadelphia branch of Innis, Speiden & Co., according to Donald S. Cushman, vice-president, and will be assisted in the outside sales activities of that branch by L. E. MacKensie.

William J. Thorn, former manager, completed his tenure of office on July 1, having been active in the Company since 1912.

Pifer on Schering Staff

Dr. Harry V. Pifer has been appointed to the staff of the Schering clinical research division, according to Francis C. Brown, president.

Chiris Moves to New Address

Antoine Chiris Co., Inc. has moved its executive offices, as well as the laboratory, manufacturing, shipping and receiving departments, to the Stack Building, 212 East 23rd St., New York, in order to procure larger and more modern premises.

Black Joins Warwick

E. J. Black has been appointed sales manager of the Industrial Surfactant department of the Warwick Chemical Co., according to Ernest Nathan, president. He had formerly been with the General Aniline and Film Corp. in their central research laboratories, and Antara sales department.

Conzen Appointed by Schering

W. H. Conzen, Johannesburg, South Africa, has been assigned by Schering Corp. to full responsibility for distributor sales, subsidiary and affiliated company operations within the International division, according to Dr. John N. McDonnell, vice-president. He has served for the past ten years as managing director of Schering's associated company, Scherag (Pty.) Ltd., which in 1949 opened its new pharmaceutical processing plant in Johannesburg and established branch offices in Capetown.

Our N-30 line of machine made, flint glass bottles is made up of 9 sizes ranging from 1/8 ounce to 8 ounces. They can be supplied plain or decorated to your specifications with fired-on ceramic labels.

CARR-LOWREY GLASS CO.

Designers and manufacturers of fine glass containers

Factory and Main Office: BALTIMORE 3, MD. • New York Office: 40 W. FORTIETH ST. • Chicago Office: 1572 MERCHANDISE MART

E. J. Coleman

E. J. Coleman, member of the sales staff of Winthrop-Stearns Inc., and a veteran of 41 years in the drug industry, died on July 17 of a heart attack at the age of 64. He entered the drug field as a salesman when he was 23 years old, and during the next 34 years was employed by Fairchild Brothers & Foster prior to the firm's acquisition by Sterling Drug Inc. From 1945 to 1947 he was associated with Frederick Stearns & Co., a Sterling division. From that time on he served on the Winthrop-Stearns sales staff.

He is survived by two sisters.

Carl H. Lambelet

Carl H. Lambelet, a director of New Jersey Machine Corp., died June 21 at Holy Name Hospital after a brief illness. He had been a former president of New Jersey Machine, vice-president of American Machine and Foundry Co., and an official of Bethlehem Steel Co., as well as a former president of the Packaging Institute.

He is survived by his wife, Sadie M. Lambelet; a daughter, Mrs. John S. Pink; a son, Anthony P. Chevant, Jr.; and a sister, Mrs. Lucille Reiser.

Charles D. Rommel

Charles D. Rommel, a member of the pricing department of Merck & Co., died July 5 in Point Pleasant, N. J., at 41 years of age. He had been with the company for 26 years.

Bernard H. Smith

Bernard H. Smith, chairman of the board of the Virginia Dare Extract Co., died July 4 of a heart attack at his summer home in Stockholm, N. J. at 73 years of age. He started as an assistant chemist in 1901 in the Bureau of Chemistry of the United States Department of Agriculture, later becoming chief of the Boston branch of the United States Food and Drug Inspection Laboratory. From 1912 to 1919 he was chemist for the Baker Extract Co. and was also with Garrett & Co. In 1923 he was elected president of the Virginia Dare Extract Co., a post he held until 1951.

Surviving are his widow, the former Lilla J. Brown; a son, Lloyd E. Smith, now president of Virginia Dare; a daughter, Mrs. Lincoln R. Young; and four grandchildren.

Trade Literature

Emulsifiers

Aceto Chemical Co., 82 Beaver St., New York, has issued a technical bulletin on, and offers samples of, Ceramol, its brand of Cera Emulsificans. Cera Emulsificans (partially sulfated higher fatty alcohols), is also known as Lanette Wax, and has been used in Europe for some years in cosmetics. It produces extremely stable oil-in-water emulsions which are even stable to acids, alkalis, and metal salts.

Plax Corp.

Available forms of polyethylene, Kel-F, polystyrene and methacrylate are described in a new general catalog issued by Plax Corp., West Hartford, Conn., manufacturer of the squeezable bottle and other plastic products. Included are detailed data on proprietaries and photographs showing primary uses and applications.

Betaine

The Present Nutritional status of Betaine is the title of an interesting booklet prepared by The Amino Products Division of The International Minerals & Chemical Corporation, 20 North Wacker Drive, Chicago 6. Betaine Hydrate is now available to ethical pharmaceutical manufacturers for investigation and sale. There is a strong suggestion that betain may have a profound effect as a methylating agent. In one series of cases it appears capable of reducing the total serum cholesterol toward normal.

Robinson Wagner

Robinson Wagner Co., 110 E. 42 St., New York, has issued Product Bulletin No. 143 which covers the use of isopropyl esters—isopropyl myristate and isopropyl palmitate—as well as Isopropylan which is described as an interesting innovation in lanolin derivatives recently developed by Robinson Wagner. The bulletin describes the use of these products in cosmetics and gives formulas.

DOA

The properties and uses of Di-(2-Ethylhexyl) Adipate, (DOA), as a primary plasticizer for vinyl resins are described in a Technical Service Report issued by the Witco Chemical Company, 295 Madison Ave., New York.

Folic Acid and B_{12}

The Pharmaceutical Department, Calco Chemical Division, American Cyanamid Company, Bound Brook, N.J., has issued a one-page bulletin on Interrelationships of Folic Acid and Vitamin B_{12}.

Polawax

Croda, Inc., 51 Madison Ave., New York 10, has issued a booklet on Polawaz, a non-ionic emulsifying wax of the Lanette Wax type. Several pages of formulas for medicinal and cosmetic emulsions are given in addition a complete description of the product and of methods of its use.

Diphenylacetic Acid

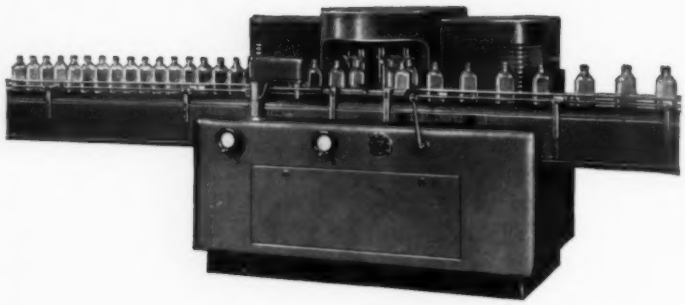
Kay-Fries Chemicals, Inc., 180 Madison Ave., New York, has issued a comprehensive nine-page Technical Data Bulletin on Diphenylacetic Acid. The bulletin contains not only a listing of properties and specifications, but also suggested applications and a synopsis of work reported in the literature.

Carbide & Carbon Chemicals

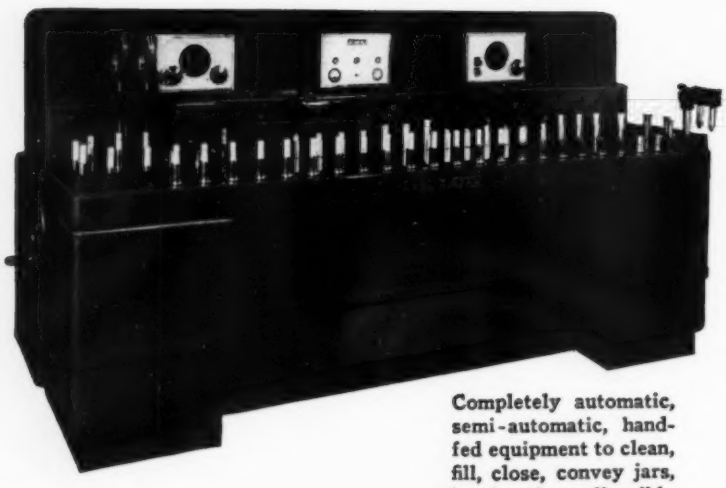
Synthetic Organic Chemicals, a new, thirteenth, 160-page edition with detailed data on 250 different chemicals is now available from Carbide & Carbon Chemicals Company, 30 E. 42 St., New York. Almost all fields of chemistry are covered, a new section on agricultural chemicals being included, and surface-active agents tailored to specific needs. The alcohols family includes alcohols containing from one to seventeen carbon atoms all of which are available in tank cars. Many new intermediates for pharmaceutical synthesis are listed.

KIEFER
BOTTOMS-UP
BOTTLE CLEANER

A tried-and-tested machine that INVERTS and CLEANS bottles! As the compressed air rushes in, OUT goes the dirt. Smooth, continuous, clocklike operation all day long. (sixty to eighty lbs. of filtered compressed air does the trick). A large high-speed fan collects everything expelled, into a bag.



TWO FAITHFUL KIEFERS DESERVING WORK IN YOUR PLANT



Completely automatic, semi-automatic, hand-fed equipment to clean, fill, close, convey jars, bottles, tins, collapsible tubes.

KIEFER
ENDWELD TUBE FILLER
and SEALER

An all-around marvel. It either FILLS liquids or solidly PACKS pastes into tubes up to 1½" diameter. Insures a fast, neat, accurate, no-waste job which includes WELDING the tube end into a trim, dependable package. Fold and corrugation follow, if desired. Tube size change-over simple. Device for counting tubes filled, helps you figure your dividends thru saving of tube length by this unique method.

●

FILTERS

The Karl Kiefer Machine Co.

CINCINNATI, U. S. A.

NEW YORK SAN FRANCISCO BALTIMORE CHICAGO BOSTON LOS ANGELES SAVANNAH LONDON, ENGLAND

Management Forum

by Francis Chilson

INDUSTRIAL CONSULTANT

Settling Strikes

In 1946 I developed a plan for settling strikes which was based on hardheaded common sense and common humanity. I received a deluge of letters criticizing the plan one way or the other but not one of these letters offered proof to show that the plan was fallacious from a standpoint of economics. Not one letter offered any facts to show that the plan was unfair to labor, to management or to the public, which is vitally concerned with every strike. Every letter aired the writer's prejudices, reflected his personality and stated his opinions, sometimes vehemently. All I wanted and still want are facts. In view of the current steel strike with its economic, military and political repercussions I am led to reprint the suggestions made six years ago with minor amendments to give my remarks currency, and once again I would like you to tell me *factually* what's wrong with the plan.

Every one of you is interested in the current steel strike—you can't help but be. The strike has already affected your business, and everything you plan to do this year. It is going to affect our position in Korea and our immediate if not permanent position in the world.

Here's how strikes cause losses to everybody—the public, management, labor, and even the unions themselves:

The public loses materials of which it is acutely in need. Every business is affected from a profit standpoint by strikes in basic industries which keep business men from getting necessary raw and construction materials.

Strikes are unnecessary; they are an obsolete weapon of labor through the use of which everybody loses including labor itself.

The interests of management are seriously impaired. During a strike management loses the profit on orders it cannot fill during the strike period. Management loses a good portion of its administrative and selling overhead, which it must maintain even when orders cannot be filled, in order to maintain its organization intact. Management also loses plant overhead for the strike period. Plant overhead cannot be suspended simply because the plant is not operating.

The worker loses his wages for the strike period. Even when a strike for higher wages is on, the worker in a prolonged strike loses money anyway. A strike lasting but a month will cause him to lose 8⅓ per cent of his annual wages. If it lasts for two months, he will lose 16-2/3 per cent of his annual wages.

Even the unions lose money because of strike benefits which they are required to pay, plus the loss of dues.

Therefore, if a way could be found to eliminate strikes without injuring the bargaining position of the worker, a great benefit would be conferred upon everybody.

I would like, therefore, to suggest a plan for settling strikes which, if management could be induced to try it, should go a long way toward establishing industrial peace. The plan may sound radical to you at first glance, but actually it would operate in the interests of all.

The plan provides for settling strikes quickly without loss of wages to workers, or loss of production to the public. This sounds like a large order, and maybe I'm sticking my chin out, but here goes:

I propose that management pay time and a half for the strike period on condition that workers continue working during the strike period, and provided further that the strike is settled within thirty days from the date of its formal inception.

In order to get the bonus, workers, under this plan, would be required to agree not to strike again for at least one year after the settlement for any reason whatever.

Under this plan workers would not lose their regular pay for the strike period, but actually would gain a bonus of half time which, in effect, would constitute on an annual basis, a raise in pay of approximately 4 per cent regardless of whether they won the strike or lost it.

Under this plan the public would not suffer the loss of badly needed goods during the strike period. Military plans would not be stymied and business, not on strike, would not lose profits through material shortages.

Since shipments would continue uninterrupted, management would not lose the profit on sales for the strike period, nor would management be compelled to sustain the loss of factory, administrative and sales overhead for this period.

When you consider that overhead of the average factory is generally from two to five times its direct labor payroll, and when you realize that during a strike the overhead goes on just the same, it obviously would be to the advantage of the management to pay the strike bonus while negotiations are being conducted—*because the bonus would constitute only a small fraction of management's overhead loss that otherwise would ensue.*

Under such a plan, management, to insure good faith on the part of its employee organizations, would not be required to pay the strike bonus until the end of the year.

I realize that some short-sighted manager might object to this plan on the ground that it might cause annual strikes. I doubt if this would be the case, because if the workers won the strike there would be no immediate reason to strike again. Moreover, the unions are smart enough to know that repetitive strikes—for no reason other than to gain the strike bonus—would be regarded eventually by the public as racketeering, pure and simple.

Under this plan everybody would gain something. The public and the armed forces would gain badly needed supplies; management would save the profit on the sale of its goods and its general overhead for the strike period; and the workers, even if they lost the strike, would still gain an increase in pay equivalent to a 4 per cent annual pay raise. The unions would save the strike benefit funds they are compelled to pay during prolonged strikes and there would be no interference in the payment of dues.

Under this plan the strike procedure would be as follows: After a period of negotiation, employee representatives, or unions, having failed to impress management of the justice of their claims, would serve a formal strike notice to begin as of a certain date. From that date work would continue uninterrupted while further negotiations with management were conducted. (These negotiations might, for instance, be conducted by a board representing the public, labor and management.)

If the decision were in favor of management, the workers would still get their strike bonus. If the decision were in favor of the workers, they'd also get the bonus, but in either case it wouldn't be paid until one year after the settlement.

The question arises as to whether a plan, which is predicated on ending a strike within thirty days, would work; because so many strikes have lasted much longer than this. In such cases, since the workers would lose the half-time bonus if the strikes weren't settled within a thirty-day period, it seems logical to suppose that they would bring pressure on their unions, or representatives, to end the strike within the arbitration period—because they would certainly prefer to gain *something* rather than take a chance on losing everything.

On the other hand, this plan, if generally adopted, would exert a strong pressure on management to settle major difficulties, because it would be in the interests of management to avoid the payment of the strike bonus on top of what the workers might be awarded by the arbitration board.

So much publicity is given to strikes that the impression is that strikes in every industry are very common occurrences. It certainly seems so these days, but statistically this is not the case. Workers do not like to strike any more than management likes to have them strike. Even during the present time the percentage of strikers, to the total number of people employed, is very small—about 6 per cent.

If you read the history of the most strike-bound industry of all—the coal mines—during the past twenty-five years, you will find that there haven't been more than four or five major strikes in that period.

The simple fact in labor relations is that workers do not like to strike. They cannot afford the loss of their wages for prolonged periods of time. Management doesn't like strikes, not only because of their disrupting influence, but because they are extremely costly through loss of profits and overhead over and above what management is compelled to pay when it loses a strike.

The public doesn't like strikes because it disrupts plans; disrupts services; causes collateral unemployment and tremendous losses everywhere.

Slowly we have come to realize that politically and economically a war in any part of the world affects this country as a whole, and we reluctantly have committed ourselves to an expenditure of billions to stop such wars. When are we going to realize that a strike of any consequence in any industry affects the whole national economy. Strikes must cease!

It seems to me, therefore, that a plan which makes it possible for everybody to gain something, however small, is worth a trial.

Barenco Mixers

A two-color, four-page catalog describing Barenco Mixers for the chemical, drug, cosmetic, textile, ink and food processing fields was issued this month by the manufacturer, Barrington Engineering Corporation, and is available upon request at the company's sales and executive offices, 110 West 40th St., New York 18, N. Y.

Barrington Jet Mixers are efficient machines designed specifically for wet mixing liquid and solids, and for emulsifying, homogenizing and dispersing applications. They are unique among mixers in that they are extremely versatile machines that not only mix intensively without stratification, but also accomplish the following:

1. Speed up mixing cycles, frequently cutting the time of mix to less than 15 minutes.

Your product couldn't ask for more—a lovely-to-look-at sales package capped with a beautiful molded Empress closure.

MAKE-UP makes the difference...

Here is another fine example of a beautiful, distinctive package you can give your products and still keep within commercial limits on container costs.

The new, lovely Contoure Line, you see here, is part of a tremendous selection of Duraglas stock-mold containers Owens-Illinois offers you in different sizes, styles and shapes. Once you select the ones exactly right for your products, our packaging specialists will design an appealing label and closure combination for you.

Have a highly individualized Duraglas sales-package economically by using stock-mold containers. And, regardless of market conditions, you can't afford not to give your product the advantages of selling impact at the point of sale.

This sparkling new Contoure Line is available in 5 popular sizes—1-, 2-, 4-, 6- and 8-ounce.

Duraglas packages are protectors of quality

TRADE MARK REG. U.S. PAT. OFF.

OWENS-ILLINOIS GLASS COMPANY • TOLEDO 1, OHIO • BRANCHES IN PRINCIPAL CITIES

New MIKRO AIR CONVEYING SYSTEM

Ventilates and Cools as it Carries Material to the MIKRO-COLLECTOR*

Diagram showing installation for conveying material from dryer (or other equipment) to drum packers, cooling it during conveying from 220°F. to 120°F., exhausting two barrel packer hoods with face velocity of not less than 200 ft. per min. Total air used for both conveying and hood venting approximately same as needed for hood venting alone.

- *Permits use of ventilated air from packaging hoods to be used for conveying material*
- *Reduces required size of dust collecting unit as much as 50%*
- *Conveys material from any dust source (dryer, pulverizer, blender, tank, vat, etc.)*
- *Cools the conveyed material without mechanical refrigeration*
- *Spans distances up to 200 feet*
- *Will by-pass any obstacle in the form of existing machinery or equipment*

These and other advantages make the MIKRO Air Conveying System an ideal low-pressure, low-cost method of conveying material from any dust source. Its complete flexibility helps solve plant layout problems without costly flow sheet revisions.

This dust-tight installation conveys up to 800 grains of dust per cubic foot of air . . . Makes possible the return of filtered air to processing area, thus reducing loss of heated or conditioned air . . . Assures freedom from infestation and metallic contamination . . . Easily cleaned . . . Eliminates booster fan, thus preventing change in particle sizing.

The MIKRO Air Conveying System is more economical to install, operate and maintain than a conventional mechanical system. Even greater saving is effected when stainless steel or non-ferrous construction is required.

*Patents applied for by H. J. Hersey, Jr. and Pulverizing Machinery Company

SEND FOR new MIKRO AIR CONVEYOR Bulletin

Booth 157 — 7th National Chemical Exposition — Chicago Coliseum — Sept. 9-13, 1952

PULVERIZING MACHINERY COMPANY
22 Chatham Road Summit, New Jersey

PRESERVE OUR HERITAGE: FAITH, FREEDOM AND INCENTIVE

MIKRO-COLLECTOR 100 PER CENT
Reg. U.S. Pat. Off.
By the makers of
MIKRO-PULVERIZERS and MIKRO-ATOMIZERS

3760

2. Accelerate chemical reactions and dispersion, continually cutting thru agglomerates and exposing fresh surfaces.

3. Reduce particle agglomeration.

4. Produce uniform and homogeneous dispersion of solids into liquids with excellent wetting out.

5. Mix with minimum incorporation of air.

6. Mix with little vortex and surface boil, with continual circulation of material evenly from the bottom to the top with no stratification.

7. Handle efficiently and quickly a wide range of liquid viscosities from water thin up thru heavy bodied emulsions and dispersions as high as 30,000 centipoise.

The Jets come with interchangeable rotors and stators, easily maintained and replaced even by inexperienced operators. These interchangeable rotors and stators are designed for greater mixer adaptability for different mixing problems.

The Jets are produced in various materials of construction in accordance with the corrosion problem inherent in the mixing application. Usual materials are stainless steel, white bronze, mild steel and nickel alloys. For special applications the Jets can be constructed with all contact surfaces rubber coated.

Of special interest to operating engineers and maintenance crews, one of the interchangeable Jet stators is provided with a screened in surface to prevent pickup of material which may damage the high speed rotor. These screened stators not only prevent mixer damage due to foreign material being sucked into the mixing chamber, but also aid in particle size reduction since material is continually drawn thru the wire screen.

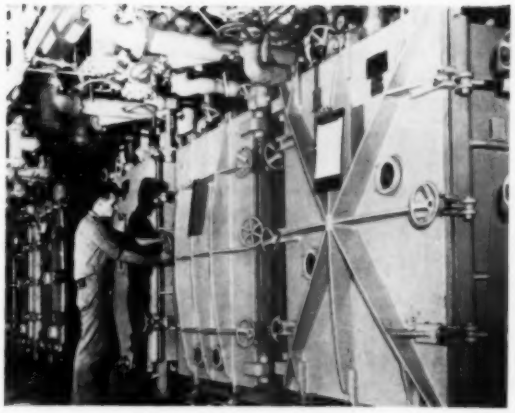
An interesting catalog describing the Barrington Jet Mixers is available upon request.

The following information is supplied by manufacturers of the equipment described and claims made below by these manufacturers are passed along for what they are worth. Presentation of such notice in this department is not to be taken as endorsement of the claims or of the equipment.

Vacuum Dehydration of Streptomycin

Achievement of volume production while maintaining absolute purity of product is one of the big problems of all pharmaceutical companies manufacturing the so-called miracle drugs. E. R. Squibb and Sons, a leading producer of antibiotics, uses high-speed vacuum pumps in its New Brunswick, N. J., plant for the manufacture of streptomycin. Using these pumps, Squibb is able to effect volume dehydration of streptomycin solution at temperatures which have no deleterious effect on the drug.

The final step in the process by which Squibb produces streptomycin is the freezing of the liquid antibiotic into solid form. This was found necessary to prevent the streptomycin from foaming over the containers in which it is held when placed in vacuum ovens for dehydration and resulting in the loss of some of the drug. The water vapors released by the frozen



streptomycin in the vacuum ovens are drawn through conductors into condenser coils and snap-frozen. This snap-freezing of the exhaust vapors reduces the volume of air that the vacuum pumps must draw out and makes possible the use of smaller volume pumps. When dehydration of the streptomycin solution has been completed, the dried antibiotic which remains in the vacuum ovens is removed, a new charge of frozen streptomycin inserted and the process repeated.

The keystone of the entire dehydration process is the group of Stokes vacuum pumps which maintains the vacuum in the dehydration ovens, draws excess vapors into the condensers and exhausts to the atmosphere such gases as are not snap-frozen in these condensers. In turn, the keystone of the efficient operation of the pumps is the oil seal between the rotor and cylinder and at the discharge valve.

In the original pilot plant which Squibb & Sons set up at its New Brunswick, N. J. factory, engineers found it impossible to maintain a steady rate of production because of the progressive contamination of the oil in the pump with moisture. Thus, over a two to three hour period pump efficiency would drop appreciably, culminating in a 15 to 30 minute shutdown while the oil was changed. With a fresh charge of dry oil, pump efficiency was againat a peak, only to drop slowly until, after another two to three hours, the processing again had to be stopped and the oil changed.

When output of streptomycin was expanded from the pilot plant stage to full commercial production with the installation of a group of Stokes rotary vacuum pumps and the necessary vacuum ovens and condensers, company technicians added an oil reclaimer for continuous purification of the vacuum pump oil to insure sustained peak production.

A Hilco Model GM-1, with a capacity of 50 gallons per hour, was selected to service the pumps at Squibb. It removes both solid impurities such as carbon, sludge and abrasives and, what is most important in an installation of this kind, moisture and other high vapor contaminants. In this unit, dirty oil is first filtered through a bed of Fuller's earth or absorbent clay, then subjected to the drying action of an electrically-heated vaporizer and vacuum pump.

Processing ACTH in Stokes Vacuum freeze-drying equipment at Armour Laboratories, Chicago, Illinois.

Modern Benefits

to the hog.....from the hog

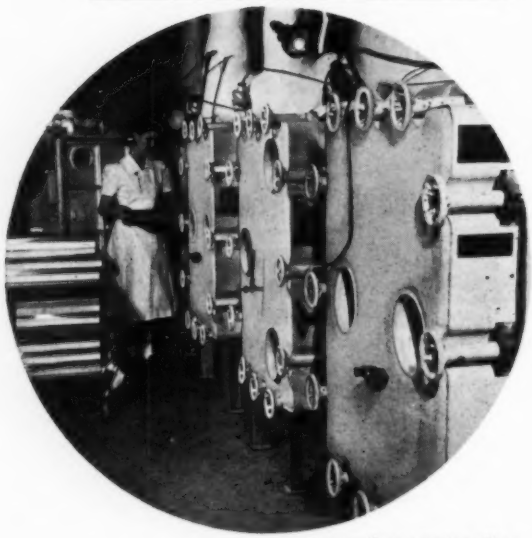
by Vacuum Processing

New serums made by vacuum freeze-drying give promise of wiping out the plague of hog cholera which for a century or more has cost the world incalculable millions of dollars.

New hormones made by vacuum freeze-drying from hog glands are effecting dramatic alleviation or cure of arthritis and many other diseases.

Vacuum freeze-drying – one of many modern techniques pioneered by Stokes and carried out commercially with Stokes equipment – captures life, defies oxidation, halts aging, preserves potency, for the benefit of mankind.

Stokes engineers invite consultation on modern vacuum techniques of chemical processing – drying, impregnating, metallizing – of pharmaceuticals, chemicals and many industrial products.



Vacuum freeze-drying of hog cholera serum at Pitman-Moore Laboratories, Zionsville, Indiana.

STOKES

STOKES MAKES

Plastics Molding Presses,
Industrial Tabletting
and Powder Metal Presses,
Pharmaceutical Equipment,
Vacuum Processing Equipment,
High Vacuum Pumps and Gages,
Special Machinery

F. J. STOKES MACHINE COMPANY, 5532 TABOR ROAD, PHILADELPHIA 20, PA.

At Squibb, the lubricating oil is pumped from the Stokes pumps into a dirty oil tank. From there it passes through the Hilco reclaimer and is then pumped to a clean oil storage tank. From this tank the reclaimed oil flows by gravity back to the vacuum pumps.

The continuous supply of clean oil thus afforded the vacuum pumps has not only obviated the need for production stoppages while oil is changed and permitted the pumps to consistently produce a high vacuum, but it is prolonging the life of the pumps and saving up to 98 per cent of the lubricating oil used. With operations on a 24-hour basis, the Hilite filter medium used in the Hilco reclamer to process the solnus oil is checked every week and replaced only when conditions require it, a rare occurrence.

The dollar and cents value of the oil treatment system at Squibb is evident from the marked effect it has had on the production rate of streptomycin. By eliminating the three 15 to 30 minute oil-change shutdowns, averaging 23 minutes each, from each 8-hour shift, this pharmaceutical company has been able to boost output approximately 15 per cent. Production has been further increased by the elimination of the progressive decline in vacuum pump efficiency between oil changes which tended to prolong the period required to dehydrate a charge of streptomycin solution.

Another saving has been in the cost of oil treatment. In the original pilot plant set-up, dirty oil was either discarded or shipped out for refining. In the first case there were expenses for new oil and for the labor employed in changing the oil. In the latter case, beside labor costs there were the expenses of transportation and re-refining. Now the lubricating oil is always in condition and a maximum of only 2 per cent new oil is ever needed. The really significant contribution of the oil reclaiming system at Squibb, however, is the steady uninterrupted production of top-quality streptomycin it has made possible.

New Germicidal Cloth

A cloth impregnated with enough germicide to make two and a half gallons of sanitizing agent and which can itself be used for swabbing equipment in food and other industrial plants, has been developed by Sterwin Chemicals Inc., according to P. Val Kolb, president.

Called "Rocloth," the new product is made from specially woven, thin cotton fabric. Sheets twelve inches square are impregnated with Roccal, a powerful quaternary ammonium germicide.

To make a sanitizing agent, a sheet is immersed in approximately ten quarts of water, preferably warm, and agitated a few seconds. The resultant agent has a strength of 200 parts per million.

The cloth itself is then used for swabbing plant equipment and such personal items as footwear, goggles and respirators, to help prevent growth and transmission of bacteria.

"Rocloth" is recommended for sanitizing vegetable bins, coffee urns, refrigerators, soda fountains and washrooms, and for cleaning eggs prior to packing and shipment. It is being made available also to dairy farmers for cleaning cows' udders and flanks.

The product is packaged in a stiff fibre carton with a hole punched at the top so that the box may be hung on a wall near the equipment. Sheets are packed 60 to a box. Sterwin Chemicals is making "Rocloth" available through leading sanitary supply dealers and chemical supply houses.

Howe Hand Truck Catalog

A twelve-page Condensed Truck Catalog (Form 508-B) has been just released by the Howe Scale Company, Rutland, Vermont. Specifications and illustrations are shown for the complete line of the latest Howe two and four-wheel Hand Trucks, Trailer Trucks, Baggage Wagons, Platform Skids, Dollies, Lift Jack Systems, Wheels, Casters and Molded-On Rubber Tired Wheels.

This catalog also shows modern Howe construction features engineered for long, trouble-free and economical materials handling service. Howe Trucks have been famous for ruggedness and dependability for nearly a century.

For further information, write for a copy of Form 508-B "Move Materials Faster, Easier With Howe Trucks", The Howe Scale Company, Rutland, Vermont.

Twin-Shell Blender with Agitator

The Patterson-Kelley Company, Inc., East Stroudsburg, Pa., now offers its Twin-Shell Blenders equipped with a newly designed rotating "Intensifier Bar". The Twin-Shell Blender is a recently developed mixer especially adapted to the processing industries. The lug-studded Intensifier Bar improves mixing action by effectively breaking up lumps, dispersing materials which tend to agglomerate, and homogenizing liquids into solid mixes.

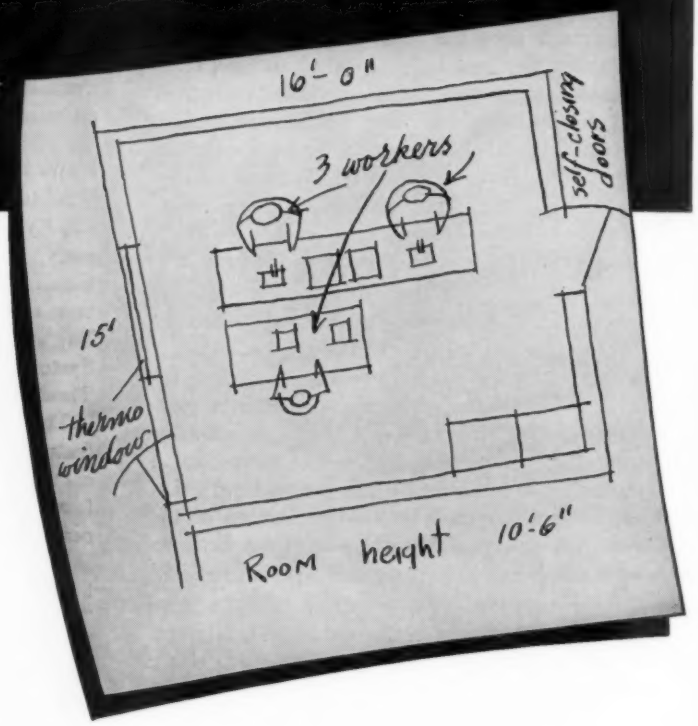
The Intensifier Bar is so located that the cylindrical lugs act only on the top layer of the material being mixed. Rotation of the blender continuously supplies fresh material to the impact and shearing action of the lugs, the peripheral speed of which is approximately 2500 ft. per minute.

The metal bar is belt driven by a separate motor. Power requirements are small since the bar acts only on the top layer of material. The bar is easily removed for cleaning by pushing it toward the spring-loaded end and sliding it from its sockets (see illustration). It is currently available on all units up to the 60 cu. ft. size.

The Twin-Shell Blenders themselves are available both in acrylic plastic and steel types. Their design and construction provides a new and efficient mixing principle which involves a combined tumbling or rolling action with a simultaneous transverse movement within the entire mass of material. In addition, a folding action is caused by the combining and dividing of the mass as the blender rotates.

The Blenders are used for mixing pharmaceutical compounds, sweeping compounds, paint pigments,

This was Lectrodryer's proposal for keeping a workroom DRY



the Problem:

A room 16' x 15' x 10½' is to be held at 20% to 25% relative humidity at a dry bulb temperature of 85° F.

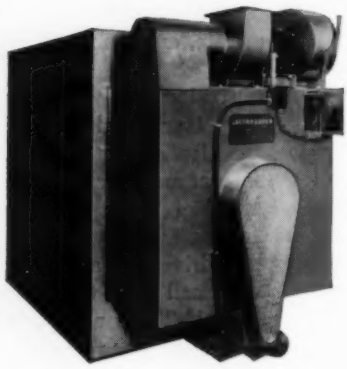
Three people will work in this area.

Materials processed give off no moisture.

Loss of air from the room will be small.

the Solution:

The Type CHG air-conditioning Lectrodryer*, capable of delivering 350 cfm of DRY air at 15° above temperature of the cooling water, with reactivation heat supplied by fuel gas, electricity or 110 psig. steam.



Lectrodryer engineers tell you exactly what equipment you'll need for dehumidifying an area, as they did in the actual case cited above. And, in addition, they advise on methods of sealing openings and walls against the intrusion of moisture—so necessary to hold down your operating costs.

Lectrodryers come to you fully assembled. You have only to connect up supply lines and ducts, and they're ready for work. If you'll tell us your humidity problem, we'll recommend a solution. Pittsburgh Lectrodryer Corporation, 309 32nd St., Pittsburgh 30, Pennsylvania.

In England: Birlec, Limited, Tyburn Road, Erdington, Birmingham.
In Australia: Birlec, Limited, 51 Parramatta Road, Glebe, Sydney.
In France: Stein et Roubaix, 24 Rue Erlanger, Paris XVI.
In Belgium: S. A. Belge Stein et Roubaix, 320 Rue du Moulin, Bressoux-Liege.

LECTRODRYERS DRY WITH ACTIVATED ALUMINAS

LECTRODRYER

*REGISTERED TRADEMARK U.S. PAT. OFF.

insecticides, developing powders, metal powders, plastic powders, ceramic glazes, starch and flour, soap powders, fertilizers, explosives, detergents, dyes, cosmetics, gelatins, tobaccos, minerals, feeds, resins and many other compounds. Descriptive literature on the Intensifier Bar and on the Twin-Shell Blenders may be obtained from the Patterson-Kelley Company, 468 Warren St., East Stroudsburg, Pa.

New Liquid Packaging Machine

Now, the ever popular Stokeswrap automatic packaging machine can package a variety of liquids and semi-liquids in either transparent or opaque plastic film. Recently introduced at the packaging show in Atlantic City, the Stokeswrap automatically filled the attractively printed plastic film, formed a pouch, and heat-sealed the edges at speeds up to 120 bags per minute.

Manufactured by Stokes & Smith Company, a wholly owned subsidiary of Food Machinery & Chemical Corp., the Stokeswrap features accurate filling with positive displacement piston filling heads, the most accurate type. All parts in contact with the product have sanitary fittings that are non-corrosive. Other features include: easy adjustment of fill with a handwheel without stopping machine; easy cleaning of machine at end of production run; high production, with speeds up to 120 packages per minute. The Stokeswrap will package liquids, creams, oils, greases, juices, concentrates, dressing, lotions, chemicals, etc. For complete details, write Stokes & Smith Company, Frankford, Philadelphia 24, Pa.

Foam Packing

Savings in breakage and postage with supplementary benefits in reduced handling of claims and lower insurance costs, have resulted from the first large-scale commercial packaging use of Bakelite phenolic foam by a mail order house. Shown by Bakelite Company at the National Packaging Exposition and developed at Bakelite Laboratories, Bakelite foamed phenolic resin has been successfully adapted and tested in actual use as a packing material by the specialty mail order house of Miles Kimball Company, Oshkosh, Wis. About one-seventh the weight of loosely packed shredded paper—the equivalent to about one-tenth the weight of ordinary shredded newsprint—Bakelite phenolic foam combines extremely low density with the special advantages of flame resistance, ease and speed with which it can be produced and handled, high resilience, attractive appearance, and unusual thermal insulating properties. Pre-cut in slabs of convenient, one to two-inch thickness and hand cut to fill package space, the foam saves on over-all packing time, increases worker efficiency and lowers worker fatigue when packing heavy yet fragile items. Lightweight glassware, ceramics and similar breakable articles are kept from shifting and chipping each other by simply pressing them into the slab of foam to form their own cavities. Where weight makes a difference as in parcel post or express shipments, a test mailing reveals this favorable comparison for foamed resin: top grade shredded paper packed in an ordinary corrugated container of about one cubic foot capacity weighed five pounds, four ounces as compared to one pound, 14 ounces for Bakelite phenolic foam in an identical package, a saving of about 65 per cent in shipping weight. The containers were shipped with packing, but exclusive of merchandise. Highly flammable materials such as shredded paper and excelsior burn to ash at the touch of a match, but foam produced from Bakelite phenolic resin and catalyst only chars under a blow torch flame and stops burning as soon as the flame is withdrawn. Foam is prepared from Bakelite phenolic resin in liquid form which is briefly beaten to stir in air, mixed with an acid catalyst and poured into a simple form. This mixture quickly expands to at least 200 times its original volume. Since the entire operation takes only 45 seconds from beginning to end, production rates up to 700 cubic feet per hour are possible using two operators. A full year's experience with new techniques developed by T. L. Drummond of Miles Kimball Company has proved in actual shipping operations that packing with Bakelite phenolic foam reduces postage costs, breakage of fragile items, packing time and worker fatigue. Customer response emphasized the superior attractiveness and appearance of Bakelite phenolic foam due to its pleasing pink color, neatness and cleanliness. Write Bakelite Company, 122 E. 42, N. Y. 17.

Hand Sealer

A new development of a HAND ROTARY SEALER primarily for military packaging that requires large bags, pouches, barriers and innerliners of kraft-backed and scrim-backed laminates is announced by PACK-RITE MACHINES of Milwaukee. This Model G sealer makes tight seals at splices and over-laps of large enclosures fabricated from spliced material. With this sealer it is possible to obtain a vapor and moisture-proof seal at points where material is of extra thickness by making a seal with two grooved impressions. This form of seal is accomplished by having double grooves on one of the pressure sealing rolls meshing with double beads on the other roll. The rolls are seen in the cut-away section. The double grooved seal not only assures tightness but greater strength as well.

When splices are encountered and the seal made over extra thickness of material, provision has been made to "soak" in more heat in order to fuse and soften the thermoplastic. This is done by spring loading one of the preheater bars which brings both bars at slight pressure in direct contact with the material.

This sealer makes seals with a "once-over" forward operation and can be operated at a speed of about 30 feet per minute. It weighs only 5 pounds and is easily handled by women. The over-all dimensions are—length 10½", width 4", height 6". Made by Pack-Rite, 407 E. Michigan St., Milwaukee.

THE THIRD EDITION OF

MODERN COSMETICS

MODERN COSMETICS, published by the Drug & Cosmetic Industry, was the first book on the formulation and manufacturing procedure of cosmetics to be published in America. It was an immediate success. In two previous editions eight thousand copies were sold in America and in forty-two foreign countries.

The Second Edition of MODERN COSMETICS has been out of print for three years. During that time we have received more that a thousand inquiries for this work. But rather than bring out a hurry-up job to meet the urgent demand we decided to wait.

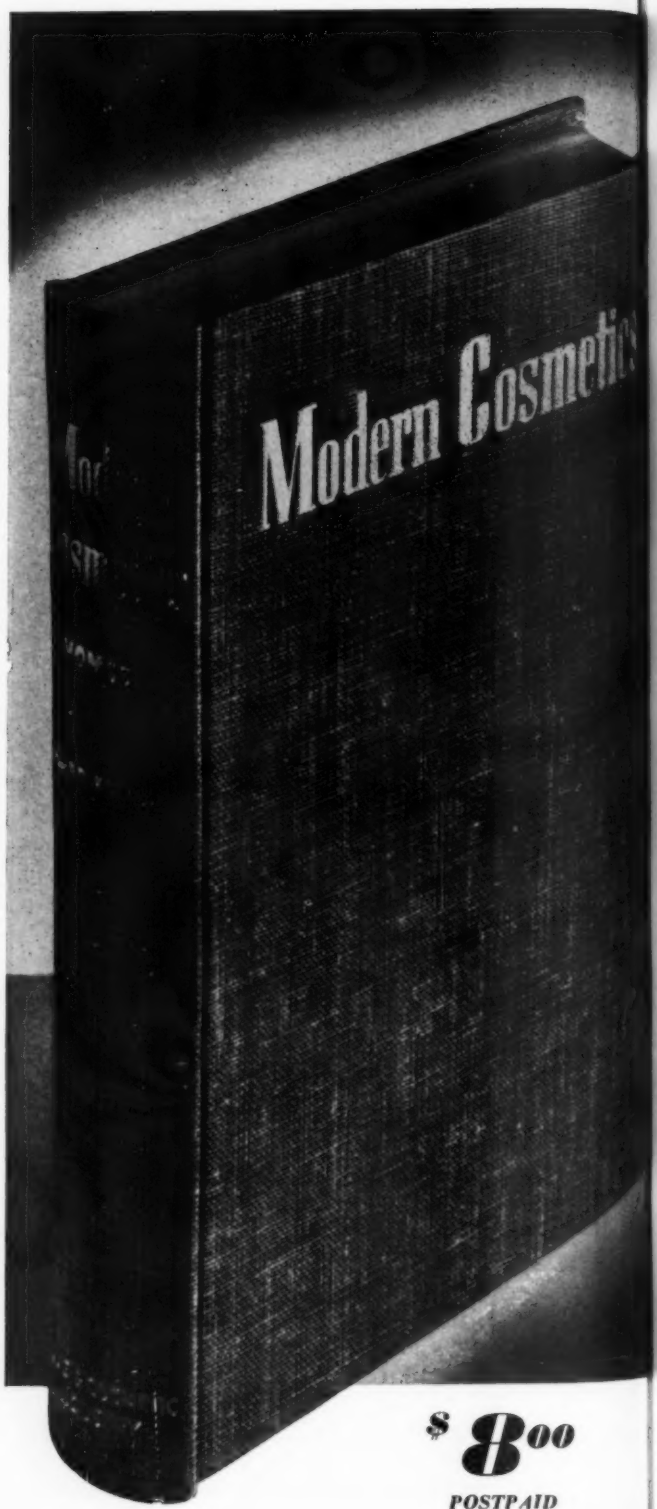
E. G. Thomssen, B.S., A.M., Ph.D., Chemical Consultant, Author of "Soap Making Manual," "Modern Soap Making," and well known contributor to Technical literature, was engaged to completely rewrite this new Third Edition—to bring to it all the new developments of the past ten years in manufacturing instructions, materials, and formulas.

To those who have made MODERN COSMETICS their handbook we say—this new edition will be infinitely more useful to you, because of the scope of new material, new tested formulas, and the correction and modernization of the procedure in formulation.

Chemist, factory manager, perfumer, owner—anyone interested in cosmetics will find MODERN COSMETICS a valuable help in business. It is a technical book, filled with formulas, procedure, manufacturing practices, yet so clearly and simply written that even one not connected with the industry can understand its text.

The most experienced chemist or factory manager will find in its wealth of information, useful methods new to him. The inexperienced man or woman who wants a clear understanding of the industry, wants to know something about how cosmetics are made, who is working on a small scale with the handicap of little experience or knowledge, will find the book easy to understand, a great help and guide.

To those who wish to procure MODERN COSMETICS, to the newcomers in the industry, we say—here is a book that, because of its completeness, the simple and easily followed instructions, the clearness with which every problem and every phase of cosmetic manufacture is discussed, the authority of a standard work, is well worth its weight in gold to you. For with it, you have a firm, thorough understanding of cosmetic manufacturing.



MODERN COSMETICS

by **E. G. THOMSSEN**
B.S. A.M. Ph.D.

644 Pages — 70 Chapters

$8.00
POSTPAID

DRUG & COSMETIC INDUSTRY

101 West 31st Street — New York 1, N. Y.

Readers' Questions

COLD WAVE PREPARATIONS: As a subscriber to your magazine, we would appreciate very much getting an answer to the following questions. At present we are using potassium bromate for neutralizing cold waves, but we would like to know of a different chemical to be used for this purpose. Second, we would like to manufacture for professional use "a self-neutralizing cold wave" containing a magnesium salt. Any advice regarding raw materials and manufacturing procedures will be appreciated. Minneapolis.

Concerning the use of a neutralizer to replace potassium bromate, I would suggest that you try hydrogen peroxide or sodium perborate. Of course, neither of these materials are particularly stable in solution without a proper stabilizer. One suggested formula for neutralizing cold wave calls for the use of:

Solution hydrogen peroxide, 6%	**50 cc.**
Tartaric acid	**3 Gm.**
Distilled water, to make	**100 cc.**

When sodium perborate monohydrate is used, stabilizers for the aqueous solutions consists of magnesium sulfate, sodium silicate, and sodium pyrophosphate. I am not certain at this point but it seems to me that some of these methods are covered by patent.

With regard to your second question concerning a self-neutralizing cold wave containing a manganese salt. I know definitely that this product is controlled by patents issued to Reed and his colleagues. This process is covered by Canadian patent 465,446 and U.S. Patent 2,564,722. This last patent was reviewed in some detail in the October 1951 issue of our publication, page 509.

COLD SORE LOTION: We are very much interested in obtaining a formula for an alcoholic lotion that could be used for the treatment of cold sore (herpes simplex or fever blister). Could you please send us such a formula that would be medically acceptable as a basis for a proprietary product? Chicago.

A standard preparation for use in the treatment of herpes simplex is given by Tobias as follows:

Camphor	**3.00**
Menthol	**0.25**
Alcohol (66%)	**100.00**

Phenolated camphor, 4 per cent lotio alba, or spirits of camphor applied three or four times a day to the lesion are also useful applications.

DENTURE ADHESIVE: Can you supply me with formulation for a powder to hold false teeth in position in the mouth? Baltimore.

Adhesive powders for use in holding dentures are made from finely powdered vegetable gums, such as karaya, acacia or tragacanth. The powders may be used individually or in a mixture and they may be flavored with oil of wintergreen, oil of peppermint or the like. Thus, a denture adhesive may consist solely of powdered gum tragacanth or powdered gum karaya or of a mixture such as the following:

Powdered tragacanth	**22.5 Gm.**
Powdered karaya gum	**7.5 Gm.**
Sassafras oil	**0.5 cc.**

Sprinkle sparingly on denture, placing in mouth. It should be noted that some individuals are sensitive to karaya gum. The sensitivity is apparently not common.

ANTIPERSPIRANT CREAMS: Would you please supply me with a formula for an underarm antiperspirant cream? Montreal.

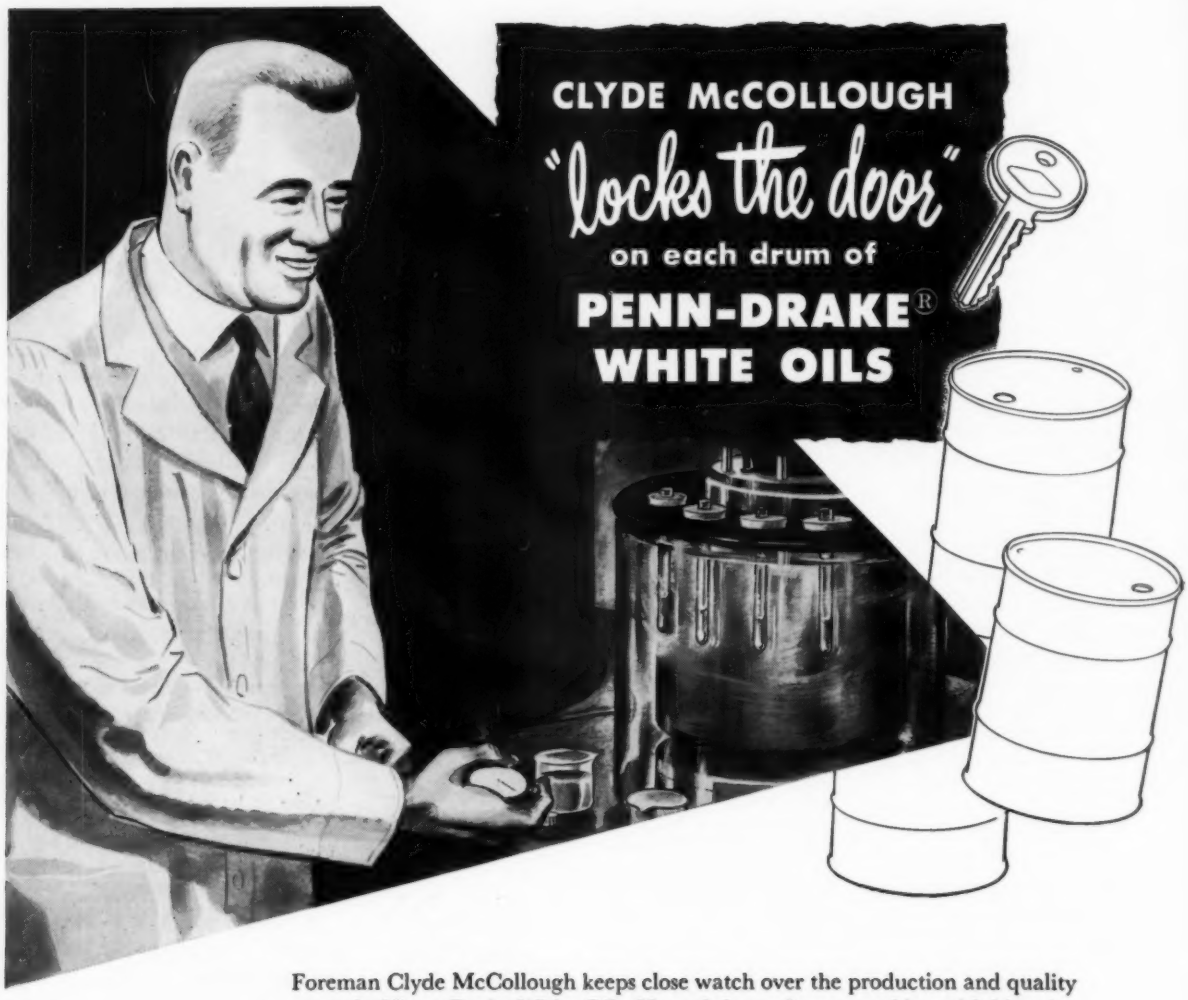
A vanishing cream type of antispirant can be made along the following lines:

Acid-stable glyceryl monostearate	**15 per cent**
Aluminum chloride	**12 " "**
Spermaceti	**3 " "**
Glycerine	**3 " "**
Titanium dioxide	**3 " "**
Water	**64 " "**
Perfume	**Sufficient**

Dissolve the aluminum chloride in 20 parts of water and warm to 50°C. Separately place the glyceryl monostearate, spermaceti and glycerine, and the remainder of the water in a kettle and bring to a boil. Place in a mixer and stir well. When the temperature has dropped to about 50°C., add the solution of aluminum chloride and then the titanium dioxide. Perfume at 45°C.

However, absorption base creams have the advantage of being less subject to evaporation and a product of this sort may be made along the following lines:

Absorption base	**24.0 per cent**
Spermaceti	**1.5 " "**
Water	**54.5 " "**
Aluminum chlorhydroxide complex ("Chlorhydrol")	**20.0 " "**
Perfume	**Sufficient**



Foreman Clyde McCollough keeps close watch over the production and quality control of Penn-Drake White Oils. He and the craftsmen working with him give particular attention to attaining the highest point of purity in the refining process.

When this point has been reached . . . and all impurities have been removed . . . Clyde McCollough authorizes the introduction of a U.S.P.-approved preservative. This additive, in a sense, "locks the door" against instability.

Because of this, and because of the extra care taken in the refining process, you can be certain of the life-time stability of every drum of Penn-Drake White Oil. By standardizing on these pure, highest quality white oils you can be positive that your finished products will not suffer because of instability . . . in processing, in shipment and in storage.

Odorless, colorless and tasteless, Penn-Drake White Oils are supplied in a complete line of U.S.P., N.F. and technical grades. If a regular white oil will not do for your product, Penn-Drake will work with you in developing one with the distinctively different properties you require.

penn drake products

PENNSYLVANIA REFINING COMPANY
GENERAL OFFICES: BUTLER, PENNSYLVANIA

Refinery at KARNS CITY, PENNSYLVANIA

Branches:* Cleveland, Ohio; Edgewater, N. J.** ***Representatives in Principal Cities

MAKERS OF: White Oils (U.S.P., N.F. and Technical); Petrolatums (all grades and colors); INSECTI-SOL (deodorized insecticide base); Deodorized and other Naphthas; Petroleum Sulfonates, Waxes; Industrial and Motor Lubricants and Greases; Fuel Oils, and other petroleum products.

Advancing Therapy

Prolonged Use of Penicillin Tooth Powder

The effect of prolonged use of penicillin tooth powder on the penicillin resistance of oral microorganisms has been reported by H. Welch, W. A. Randall, L. E. Putnam and F. D. Hendricks (*Antibiotics & Chemotherapy* 2:249, 1952). Their studies are an outgrowth of clinical work started about three years ago to determine whether the continued use of a tooth powder, containing 500 units of penicillin per Gm., would reduce the development of dental caries in children. They found that the continued use of penicillin tooth powder over a period of three years resulted in an increase in the numbers of penicillin-resistant *Streptococci, micrococci, Neisseria,* and *Corynebacteria* in the mouth as compared with controls using the same tooth powder without penicillin.

Welch and his colleagues point to the likelihood that resistant organisms may be present in small numbers; when their sensitive competitors, are eliminated these resistant forms multiply and may predominate. If they should become pathogenic, they may cause infections not amenable to treatment with penicillin.

Aureomycin Calcium Caseinate

The use of aureomycin calcium caseinate to decrease the incidence of undesired side-effects, associated with plain aureomycin has been reported by P. R. Manning and W. E. Wellman (*Proc. Staff Meet. Mayo Clinic* 27: 89, 1952. Following administration of the new drug in a tablet also containing calcium caseinate and calcium carbonate to provide antacid action, it was found that concentrations of aureomycin in the serum after administration of aureomycin calcium caseinate were comparable to those obtained with ordinary aureomycin. Of the 24 patients treated with aureomycin calcium caseinate there was no anorexia, nausea or vomiting in 20. Loss of appetite only occurred in one patient, nausea in two and nausea and vomiting in one. Of six who had previously suffered nausea and vomiting while taking regular aureomycin, five were completely free from these symptoms when taking aureomycin calcium caseinate. One patient was not helped. In concluding, Manning and Wellman state that aureomycin calcium caseinate can be used as a substitute for regular aureomycin for those patients who have anorexia, nausea and vomiting when regular aureomycin is given.

Riboflavin for Psoriasis

In his preliminary report on the use of riboflavin in the treatment of psoriasis, M. T-R. Maynard (*J. Investig. Dermat.* 18:305, 1952) stated that he has treated over 200 cases, but due to incomplete follow up he has only 148 such cases on which to base his study. All these cases were given injections of riboflavin (5-10 mg. intramuscularly, usually once weekly) as a basic treatment. It has also been given orally in daily dosage coincident with the injections. In all cases local treatment has been dispensed with until proof of the patient's response is established, and then only used on "survival lesions," or in a few instances for faster cosmetic effect. Statistics based on personal observations show that 25 per cent of the cases were healed, 52 per cent showed marked improvement, 16 per cent were improved, 3 per cent were slightly improved and 4 per cent failed to respond. None were made worse by the administration of riboflavin.

Treatment of Severe Penicillin Reactions

According to L. Pelner and S. Waldman (*Amer. Pract.* 3:293, 1952) the alarming increase in the number of severe penicillin reactions makes the routine treatment of infection with penicillin hazardous. Every injection must be given with full realization of the great potentialities for harm if the patient should be sensitive to penicillin. Important, therefore, is their report of the effective therapy of severe penicillin reactions with sodium dehydrocholate. In their procedure, 5cc of a 20 per cent solution of the drug is given intravenously every day or every other day, depending on the severity of the penicillin sensitivity. In addition, one tablet of dehydrocholic acid (3¾ grains) is given orally three times daily. In one of our cases, the oral method alone was sufficient to improve the condition. Antihistamines, although ineffective alone, may be of temporary benefit. Epinephrine-in-oil may also reasonably be included for symptomatic immediate therapy.

Thus far, Pelner and Waldman have treated 14 cases of severe serum-sickness-type of penicillin reactions with sodium dehydrocholate injections as the main-stay of therapy with excellent results. They feel that their method of treatment has much to recommend it. It has not failed so far in any patient with serum-sickness-type of penicillin sensitivity. It is an innocuous drug that has not been known to cause any harm.

Cortisone and ACTH in Skin Diseases

Three reports in the recent medical literature point to the growing value of cortisone and corticotropin (ACTH) in various dermatologic conditions. In one of these reports, K. Steiner and L. Frank (*Arch. Dermat. & Syph.* 65: 524, 1952) state that the use of these comparings afforded a good response in dermatitis medicamentosa due to penicillin. Atopic dermatitis contact type and generalized exfoliative dermatitis, food urticaria, acute disseminated lupus erythematosus, scleroderma, and mycosis fungoides also responded well but only temporarily, and maintenance therapy appeared to be necessary in these diseases. Psoriasis did not respond to cortisone or corticotropin. One patient with universal alopecia areata was a treatment failure, and the result in a patient with exudative chronic discoid and lichenoid dermatosis was questionable.

Frequent side-effects were noted, but except in a patient with lupus erythematosus no serious sequelae developed. The action of cortisone and corticotropin in those diseases in which there was a good response is believed to be due to a reduction of the different components of acute inflammation. Steiner and Frank stress that these drugs should be administered only (*a*) if they are lifesaving or life-prolonging, (*b*)

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to help a patient over the hump in severe acute eruptions, and (*c*) sometimes for subjective relief in self-limited conditions of short duration. They should not be used in chronic and recurrent diseases. All contraindications must always be strictly observed.

In the second paper, B. C. Ferguson, J. D. Rosenbaum and M. M. Tolman (*Arch. Dermat. & Syph.* 65:535, 1952) state the conditions which improved during cortisone therapy include atopic dermatitis, dermatomyositis, exfoliative arsenical dermatitis, pemphigus vulgaris, psoriasis, pityriasis lichenoides et varioliformis, and probably discoid lupus erythematosus. Maintenance cortisone therapy was required in a cases of chronic atopic dermatitis, in a case of dermatomyositis, and in a case of pemphigus vulgaris. In the one case observed, the scleroderma did not improve during a 50-day course of cortisone. In one case dermatitis herpetiformis failed to improve during a 13-day course of parenteral corticotropin administration or on topical application of corticotropin for three days.

In the *United States Armed Forces Medical Journal* (3:839, 1952), G. H. Ekblad discusses the value of cortisone and corticotropin in urticaria and dermatitis verenata. He found that a one-day treatment schedule of corticotropin consisting of injections of from 10 to 20 mg. every 3 hours for 4 doses, or injections of 75 mg. of cortisone every 3 hours for 4 doses, provides a very effective control of the lesions and symptoms of severe acute urticarias. The same treatment schedule provides a very effective relief of subjective symptoms in severe acute dermatitis venenata. The results in chronic urticaria were disappointing in the short-term schedules used. If ACTH or cortisone are not available, antihistaminic drugs given with intravenous injections of calcium gluconate often give good, although temporary, relief of pruritus in urticaria.

Salicylazosulfapyridine for Colitis

In his report in the *Journal of Gastroenterology* (21:95, 1952), L. M. Morrison describes the results obtained with salicylazosulfapyridine, a new drug, for the treatment of ulcerative colitis. During the past 2½ years, 52 patients with the chronic form of the disease were treated orally with this preparations. Ten of the patients showed intolerance to the drug and twelve others showed no therapeutic response to the agent. Thirty patients, or 58 per cent of the series, showed significant improvement following treatment with salicylazosulfapyridine. Such improvement usually occurred within two or three days of the onset of treatment and was evidenced by cessation of dierrhea, disappearance of blood in the stool, and a tendency or actual return to normal temperature. Morrison is of the opinion that the drug may be a useful agent in the treatment of chronic ulcerative colitis when employed with care and with a realization of its limitations.

TEM for Neoplastic Diseases

There is growing interest in 2, 4, 6 triethylenimino-s-triazine, generally referred to as triethylene melamine or TEM, a nitrogen mustard-like preparation for oral administrations. In the studies reported by J. H. Silverberg and W. Dameshek (*J. A. M. A.* 148:1015, 1952) 46 patients with leukemia, leukosarcoma and related diseases were treated with this compound. They found that reactions to triethylene melamine were for the most part gastrointestinal, with nausea in about one-half and vomiting in about one-third of the cases. Reactions were usually delayed, appearing about eight hours after administration of the drug. Slight to moderate depression of hematologic elements, particularly those of bone marrow origin, was regularly observed with the dosage given.

Triethylene melamine is often an effective agent in the treatment of generalized and radioresistant cases of Hodgkin's disease. Remissions occurred in 30 per cent of the patients treated and lasted for as long as 164 days. Triethylene melamine appears to be as effective as nitrogen mustard in the treatment of Hodgkin's disease. Its greatest advantage over nitrogen mustard is the fact that it can be given by the oral route. There is a decidedly lower incidence of gastrointestinal reactions. When a rapid therapeutic effect is required, as in marked mediastinal involvement with dyspnea, intravenous administration of nitrogen mustard is preferable. Patients with lymphosarcoma and reticulum cell sarcoma have shown temporary improvement with triethylene melamine therapy. Marked improvement has been noted in cases of chronic granulocytic leukemia, with striking reductions in white cell count and diminution in splenomegaly. Complete remissions have been maintained for as long as 107 days.

In another study, A. Rottino (*New York State J. Med.* 52:346, 1952) found the drug's chief usefulness to be as a treatment for lymphatic leukemia, although Hodgkin's disease and, to some extent, lymphosarcoma may respond favorably also. In no case coming under his observation did TEM produce a cure. In the more favorable cases of lymphoma, remissions characterized by subjective improvement and diminution or actual disappearance of nodes were induced. Signs and symptoms of the disease usually returned. In the most favorable of his cases a remission persists after eleven months.

Rottino warns that the drug is toxic and he stresses that overdosages must be avoided. He points to the fact that it can be given orally and without the necessity for hospitalization can, on occasion, be most advantageous.

Antihistamine vs Allergic Transfusion Reactions

The transfusion of blood or its derivatives has become an accepted form of modern medical and surgical therapy. However, the administration of blood is not without some hazard to the patient. Because of the unpleasant and not infrequent number of transfusion reactions, H. E. Ferris, S. Alpert and C. S. Coakley (*Amer. Pract.* 3:177, 1952) set out to determine whether allergic reactions could be minimized or prevented by the prophylactic use of an anihistamine added to the blood. During the course of their investigation a total of 1,349 pints of blood were used. They were divided into two groups: one of 607 pints, each protected by the addition of 25 mg. Pyribenzamine, and the other acting as a control series consisting of 742 pints of untreated blood.

The results clearly established that the use of the antihistamine, mixed with whole blood, will reduce the incidence of reactions to the barest minimum. The infusion of the 607 Pyribenzamine-treated pints produced only one allergic reaction. Pyrogenic reactions were completely absent. By contrast the incidence of allergic and pyrogenic complications in patients who were given the unprotected blood was high. In this group the investigators recorded 20 allergic reactions, and abnormal increases in temperature in 32 patients.

Ferris and his colleagues believe that from the results obtained in this study allergic transfusion reactions may be minimized if not eliminated by the prophylactic use of an antihistamine in the manner used in their study.

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Acidified Talc as a Filtering Agent

E. P. Guth (*Drug Standards* 20:5, 1952) reports that during some preliminary studies on talc and calcium triphosphate as filtering agents it was observed that when talc was used in a slightly acidic medium, a greater efficiency was apparent than when the solution was neutral or slightly alkaline. In view of this observation, a sample of talc marked U. S. P. was treated with a diluted hydrochloric acid, and allowed to stand 24 hours. The talc was washed, using a decantation procedure, until the washings were no more acidic than the distilled water used for washing. It was observed that as the acid was washed free from the magma there was a lessened tendency for the talc to settle to the bottom of the container. In view of these findings a sample of talc was treated with diluted hydrochloric acid, washed by filtration so as to remove most of the acid but not to the point of complete removal. The talc was allowed to dry spontaneously.

The resulting product was used in a series of tests. In the first of these tests, three samples of aromatic elixir were prepared following the U. S. P. directions except that acidified talc, talc U. S. P., and tricalcium phosphate were used as the filtering agents. The usual difficulty was experienced in filering the sample prepared with the U. S. P. talc while the acidified talc filtered with relative ease. The calcium phosphate treated elixir was filtered with great ease. These samples were stored on the shelf for a period of 30 days and observed from time to time. No change in the clarity or pH occurred, but the sample prepared with U. S. P. talc continued to have a faint opalescence while the others remained clear. A series of samples medicated with sodium bromide, tincture of belladonna, phenobarbital and chloral hydrate were prepared using the elixirs made with the three filtering agents. These were tested to determine the effect of the filtering agents on the taste and mashing ability of the vehicle. From these preliminary observations, Guth feels that it is advisable to undertake a comprehensive study of the properties of talc with a view toward the possible revision of the U. S. P. monograph. The work done so far shows conclusively that the filtering properties of talc can be altered and in turn affect the finished product. That the flavors of the elixirs prepared with the three filtering agents were different was agreed by all those who took part in the tasting experiment. Complete agreement on the exact differences, however, was difficult to obtain.

Safety of Sodium Perborate as a Cold Wave Neutralizer

In his talk before the May 15, 1952 meeting of the Society of Cosmetic Chemists, M. G. Mulinos pointed out that the need for oxidizing agents to neutralize cold permanent waving solutions has brought forward several useful compounds. Among these are peroxides, bromates and perborates. The peroxides are unstable and difficult to handle. Their neutralizing power is strong and under certain conditions may lead to bleaching of the hair. The more stable and milder bromates have proved to be quite satisfactory insofar as their neutralizing powers are concerned. However, their inadvertent ingestion by children in homes where this neutralizer was prepared in advance has lead to several deaths by kidney damage. It therefore became mandatory that a neutralizer be found which if imbided by accident would not result in any serious degree of intoxications.

In the opinion of Molinos such a substance has been found in sodium perborate, solubilized and stabilized with sodium hexametaphosphate. In toxicity tests with this material, the gross appearance of the organs of animals sacrificed for purposes of examination was essentially normal except for hyperhemia of the stomach mucosa from a 2.6 per cent solution within 12 to 24 hours after administration, but not after 48 hours. No gastric irritation occurred from the 1.3 per cent solution, the strength used in actual cold wave neutralization. Because systemic toxicity is a function of the rate of absorption and the concentration within the blood stream and tissues, a 2.0 per cent perborate solution was injected intravenously in Nembutalized cats, at the rate of 1 cc. per minute. Respiration, heart rate, blood pressure and survival time were recorded. It required from 6 to 12 cc. per kilo to cause death from methemoglobin asphyxia. The more slowly the injection was made, the longer the animals survived. The liver of these animals showed slight changes, the other organs being negative. From such data, Molinos concluded that sodium perborate monohydrate as used to neutralize cold hair waving preparations is non-toxic and but mildly irritant if taken by stomach or splashed into the eyes.

Experiments with New Depilitories

Experiments with a series of depilatory compounds were described by P. Flesch to the Society of Cosmetic Chemists during the meeting held on May 15, 1952. He reported that the first organic compound which caused loss of hair in human subjects and experimental animals alike had been discovered accidentally during World War II in the synthetic neoprene rubber industry. In the polymerization plants where chloroprene was being converted to neoprene, hair loss among the workers was traced to the volatile cyclic intermediary polymers or dimers of chloroprene.

Flesch investigated a number of unrelated unsaturated compounds for their depilatory activity and found that a number of allyl esters and ethers had similar *in vivo* and *in vitro* effects as the dimers. He investigated the influence upon hair growth of naturally occurring, lipoid-soluble unsaturated substances. Among these, Vitamin A and human sebum interfered with hair growth in a manner very similar to that of the other unsaturated compounds. Hydrogenation of Vitamin A abolished its depilatory activity. When taken in excessive doses over a long time, Vitamin A caused hair loss in human subjects also. In human sebum, both the unsaponifiable and saponifiable fractions had depilatory activity. Three unsaturated depilatory compounds, namely squalene, oleic and linoleic acids,

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have been identified in human sebum. Hydrogenation abolished their sulfyhydryl inhibitory and deplilatory activities. On the basis of these clinical findings we reject former theories concerning the mode of action of large doses of Vitamin A. The possibility that the depilatory action of sebum provides the first chemical clue in the etiology of human baldness will require further study.

Details on the experimental work of Flesch and his colleagues were also given in the March issues of the *Archives of Dermatology and Syphilology* (65:261, 1952) and the *Journal of Investigative Dermatology* (18:267, 1952).

Booklet on Metallic Stearates

The American Cyanamid Co. has announced the publication of "Cyanamid Metallic Stearates," a booklet which describes revised specifications of many grades resulting from recent research by the company in the stearate field. The revisions include controls on the purity and uniformity of the component fatty acids and extremely low limits of lead and arsenic. The booklet also lists the entire line of Cyanamid's metallic stearates which are used in numerous industries including the petroleum, rubber, cosmetics, plastics, cordage, ceramics, graphite, surface coating, wire drawing, and pharmaceutical industries. For copies of "Cyanamid Metallic Stearates," write to American Cyanamid Co., Industrial Chemicals Division, 30 Rockefeller Plaza, New York, N. Y.

Cationic Compounds in Deodorants

According to an abstract in *Soap, Perfumery and Cosmetics* for April, 1952, British patents 656,747-8, granted to R. Demuith, Ltd, describe the formulation of new types of deodorants and anti-perspirant formulations. These products contain a basic aluminum amine acetate and a preformed cationic bacteriostatic or bactericidal compound. The cationic compound assists the anti-perspirant action of the acetate because it increases its substantivity to human skin and hair at the same time as affording antiseptic action against the bacterial flora of the perspiration. Examples of the cationic compound are: lauryl pyridinium sulfate and hydroxyethyl heptadecenyl glyoxalidine sulfate. Such preparations may be used also in conjunction with previously known deodorant and anti-perspirant agents such as aluminium chlorhydrate.

Modified Day Creams

Although vanishing creams, and alkali creams generally, were the first of the day creams to attain widespread popularity, N. S. Peel (*Soap, Perf. & Cosmetics* 25:271, 1952) notes that many modifications have been introduced during the last quarter of a century. Prominent among the alternative emulsifying agents now available for this group of cream (including day creams, foundation creams, facial creams, powder creams and the like) are modified polyol esters of fatty acids and the partially sulfated fatty alcohol products, often known as Lanette Wax SX. Other potential constituents of day creams include texture-modifying agents like butyl stearate and cetyl alcohol, as well as pigments, like titanium dioxide. Also available is a wide range of "protective colloids" and viscosity modifiers, including gum mucilages and gum substitutes. Traces of emollients, like lanolin, mineral oil, isopropyl myristate and palmtate, and hexzamethyl tetracosane, are also useful. Humectants are of marked value.

Peel presents several typical formulas for day creams to illustrate the use of these various materials. Thus, a day cream can be prepared from:

Diglycol stearate	**15.0 parts**
Cetyl/stearyl alcohol	**1.5 "**
Isopropyl myristate	**2.5 "**
Carbitol	**5.0 "**
Methyl *p*-hydroxybenzoate	**0.2 part**
Perfume oil	**0.3 "**
Distilled water	**75.5 parts**

All the constituents of the formula except the perfume and part of the Carbitol are stirred together in the (hot) water until a homogeneous emulsion is produced. The perfume, dispersed in the rest of the Carbitol, is added at 45° to 50° C.

A formula for a foundation cream calls for the use of:

Glyceryl monostearate (self-emulsifying)	**14.0 parts**
Spermaceti	**4.0 "**
Glycerine	**6.0 "**
Methyl *p*-hydroxybenzoate	**0.2 part**
Perfume oil	**0.3 "**
Titanium dioxide	**2.5 parts**
Distilled water	**73.0 "**

All constituents, except the perfume oil and part of the glycerine and the titanium dioxide, are placed in a steam-jacketed mixer and brought to the boil. Moderate speed stirring is then carried out until a homogeneous emulsion results. A small part of the batch is thoroughly milled up with the white pigment and then stirred again into the main batch, the dispersed perfume oil being added at about 45° to 50° C. It may or may not be considered desirable to mill or homogenize before filling.

Titanium dioxide, being more inert than zinc oxide, is preferred for such products. In tinted foundation creams, small proportions of ochres, siennas and lakes are added. The total pigment content is usually below 5 per cent, though in some powder creams it rises to 15 or even 20 per cent.

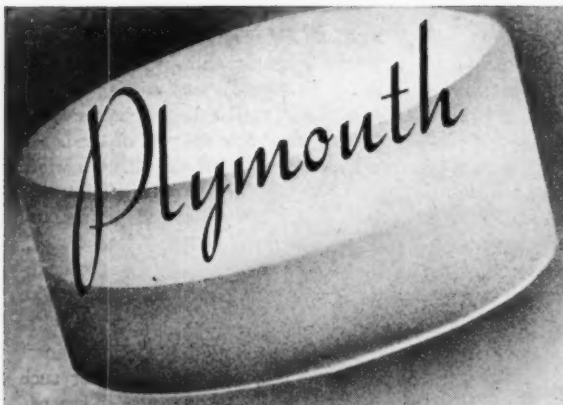
Peel presents the following basic formula for a foundation cream that utilizes the Lanette Wax SX type of emulsifier, which consists of a partially sulfated mixture of cetyl and stearyl alcohol, generically similar to the Cera Emulsificans of the British Pharmacopoeia:

Cera emulsificans (commercial)	**8 parts**
Cetyl/stearyl alcohol	**5 "**
Stearic acid	**8 "**
Glycerine	**6 "**
Titanium dioxide	**2 "**
Perfume and preservative	**sufficient**
Distilled water	**70 parts**

Mildly acidic day creams may also be prepared with the aid of emulsifying agents of the Cera Emulsificans type, for example, by using 15 per cent upwards of a 10 per cent solution in water of citric acid. Lactic, glycerophosphoric and other mild acids may similarly be incorporated. The *p*H should not go lower than 6.5. Many workers, in fact, prefer a cream to be as nearly neutral as is possible.

According to Peel, the following formula for a facial cream is cited chiefly to illustrate the use of a protective gum colloid:

Sodium carbonate monohydrate	**0.4 part**
Stearic acid	**13.0 parts**
Glycerine	**6.0 "**
Borax	**5.0 "**
Tragacanth, powdered	**0.4 part**
Methyl *p*-hydroxybenzoate	**0.2 "**
Perfume oil	**0.3 "**
Distilled water	**74.7 parts**



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Patent Thoughts and Trends

*by Thomas Cifelli, Jr.**
PATENT ATTORNEY

PATENT CODIFICATION ACT

The efforts of the patent bar and others interested in bringing the U.S. patent statutory laws up to date finally succeeded, when, on July 19th, 1952, President Truman signed the Patent Codification Act bill and it became law. The last comprehensive revision was passed in 1870 and consequently it will be easy to understand that the present codification is not exactly premature.

As is true with all codifications, the good intentions of the drafters of the legislation are not always followed by the courts. For this reason, while the new codification seems to have a number of improvements in it, one cannot be sure just what these new provisions mean until the Federal courts have had occasion to pass on them.

For the present, a very brief summary of some of the highlights of some of the changes brought about by the act will be given.

Section 41, dealing with fees, raises the fee for an appeal from the Patent Office Examiner to the Board of Appeals from $15.00 to $25.00.

Section 100 clarifies the definition of a "process" so as to have it include, among other things, new uses of old compositions. Some Patent Office decisions went so far as to hold such uses to be unpatentable.

Sections 102 and 103 recite the conditions for patentability. While they do not come right out and give a positive definition of what is patentable (as even the Supreme Court has said this is impossible), they do go much further than the present law.

Section 103 in particular impliedly provides that an invention is patentable if at the time it was made it was not obvious to a person having ordinary skill in the art to which the invention pertains. This provision definitely overrules some court decisions which presumably required a "flash of genius," since it provides that:

"Patentability shall not be negative by the manner in which the invention was made."

*Newark, N. J.

It is interesting to note that a former head of the Anti-Trust Division of the U.S. Department of Justice, sitting later as a U.S. judge, actually held that the results of systematic research such as that conducted by many research organizations was not patentable. Unless former trust-buster and judge Thurman Arnold has since changed his mind, which often happens when people really begin to understand the significance of the U.S. Patent system in the American picture, he probably is not very pleased with what Congress and the President did with this idea of his.

Section 112 appears to nullify the celebrated Halliburton Doctrine. In that case, dealing with a very valuable patent concerning the location of oil in the ground, the U.S. Supreme Court invalidated the patent on the highly technical grounds that the claims did not set out sufficient description of the apparatus but merely stated the function of the apparatus. Section 112 appears to change this as it provides in part:

"An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claims shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof."

Under present law the name of a joint inventor can be deleted from a patent application but it is not possible to add the name of an inventor mistakenly omitted. The new law, Section 116, permits this addition to be made in the application or patent.

Section 271 dealing with what constitutes infringement appears to have strengthened the patent owners right considerably. Paragraph B says that whoever actively induces infringement of a patent shall be liable as an infringer. Under present law if a manufacturer advertises an unpatented product for use in a patented composition he is merely a contributory infringer at most. Under Section 271, paragraph B, he could be sued as a direct infringer.

Paragraph C inacts into law the concept that if unpatented material is not a staple article suitable for substantial non-infringing use, whoever sells this material as a component of a patented composition is liable as a contributory infringer.

This provision clarifies the law on contributory infringement, which law has been in a hopeless "mess" as a result of some U.S. Supreme Court decisions.

Paragraph C also states that certain acts are not to be deemed misuse of the patent right. Believe it or not, but some courts even took the position that if a patent owner sought to enforce his patent right he was guilty of the misuse of his patent right. So, Congress has wisely provided that no such conclusions should be drawn.

The new law does not take effect until January 1, 1953.

Patent Pointers—III

Last spring we began a series of articles intended to give the drug and cosmetic worker some practical suggestions which would enable him to cooperate better with his patent attorney. It was planned to run these in consecutive issues but it could not be foreseen that there would be important developments in the chlorophyll, anti-TB drug and cold waving situations necessitating their immediate reporting here.

We can now, however, resume the series, which began in the March issue of this journal and was continued in the April issue. Topics already treated follow:

March

Introduction
Things to do Before an Invention is Made

Records
Diligence
Reduction to Practice

After an Invention is Made

What is Invention?
Practical Text of Invention
Trade Secret v Patent

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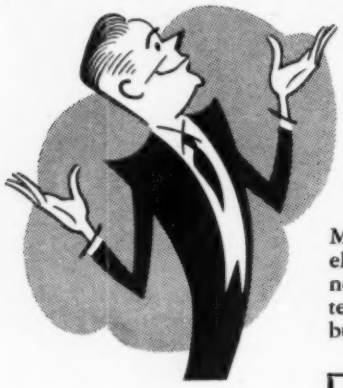

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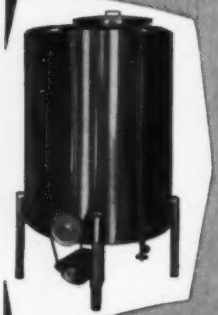

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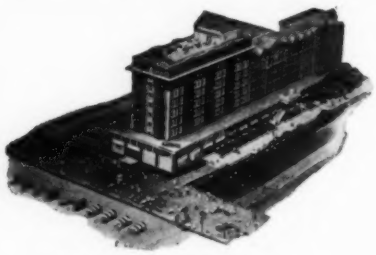

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April

Selection of Patent Attorney
Information for Patent Attorney-Searches
Preparation of Patent Application

Time required for preparation
Application to be detailed, accurate and complete
Persons to be named as inventors
Inventor and owner distinguished

The present article deals with the prosecution of the patent application and mentions interferences more or less in passing.

Prosecution of A Patent Application

After a patent application has been prepared it is mailed to the U.S. Patent Office in Washington, D.C. There it receives a serial number and filing date and is assigned to one of the seventy examining divisions of the U.S. Patent Office. At the present time the average examining personnel of each division is about fifteen. The Examiners take up the patent applications in due course, that is in the order in which they are filed, unless the case has been made special as when it appears that an earlier issue of the patent will result in public benefit or manufacture, or because of an infringing article already on the market.

The Examiner to whom the application is assigned studies it and gives particular attention to the claims, as these will measure the monopoly in the event a patent is issued. Each Examiner handles cases in a highly specialized field and has all of the U.S. patents as well as some foreign patents and some publications dealing in that particular field. The Examiner prepares a report called an "Office Action" in which he cites all of the pertinent patents as he sees them and gives his comments usually in the form of rejections, applying the cited patents to the claims. The Examiner may feel that there is no invention embodied in the claims in view of the prior cited art. In addition, the claims may be rejected for many other reasons, for example, because there are too many claims; because the claims are functional; because the claims are indefinite; because the claims are too broad or the claims define the article in terms of the process of manufacture, etc.

While the Patent Office is behind in its work it has been cutting down on the backlog of applications and at present is approximately eight months behind on a rough average, although some divisions are further behind in examining cases. Recent administrative changes and increases in examining personnel have resulted in a material cutting down on the backlog and now Office Actions within a few months after the patent applications have been filed are a distinct probability in many cases.

After the Office Action has been received you can best cooperate with your patent attorney or agent by taking an objective point of view of the cited references in relation to the claims of your patent application and point out all the technical distinctions you can between the two. Personalities should be kept entirely out of the matter. Patent Office Examiners are not vindictive. They have a job to do and on the whole do it very well. Irrelevant or polemic remarks do not help matters. Pertinent remarks showing fallacies in the Examiner's reasoning, however, are very helpful in drug and cosmetic matters if based on experimental information and submitted in the form of affidavits.

In addition to rejecting the claims on the basis of cited prior patents the Patent Office Examiner as aforesaid will often reject the claims on purely formal patent grounds such as the claims being vague, indefinite, etc. Let your patent attorney worry about replying to these matters as they are highly technical and probably can be very quickly disposed of by the patent attorney by minor amendments of the claims. It is realized that this suggestion may seem high-handed. An objection can be raised to it on the ground that the inventor is entitled to know everything that his attorney is doing for him. In justification of the suggestion, however, it can be said that unless the inventor is especially trained in patent law he is not only wasting his attorney's time but his own time—and money—in discussing these highly technical features. One does not tell a physician which scalpel to use in performing an operation. These formal matters are best handled if left to the entire discretion of the patent attorney or agent. Unless the requisite confidence is imposed in the attorney the inventor perhaps would do better to change attorneys and get one in whom he has complete confidence.

At any rate, the Office Action must be fully responded to within six months from the date thereof, unless a shortened time for reply is set by the Patent Office (done very rarely). This procedure of writing back and forth between the attorney and the Patent Office continues until a final issue is reached. It is often helpful for the attorney to interview the Examiner in person in Washington in order to clarify the issues and understand each others' positions better than can be done through an exchange of correspondence.

Statistics seem to show that on the average patent applications remain in the Patent Office between two and three years. If the patent application is finally rejected, the applicant has six months within which to appeal to the Patent Office Board of Appeals or to have the Examiner change his mind if possible. If the application is allowed the applicant has within six months to pay the final fee and his patent will issue within a month or so after the payment of the final fee unless suspension is requested, in which case the issue of the patent will be withheld for three months from the date of the payment of the final fee. The final as well as the filing government fee is $30.00 unless there are more than twenty claims in the case in which event $1.00 is also to be paid for each claim in excess of twenty.

If the Board of Appeals reverses the Examiner the applicant obtains a patent. However, if the Board partially or completely affirms the Examiner a further appeal may be taken either to (1) the Court of Customs and Patent Appeals or (2) the United States District Court for the District of Columbia. The former court is the one to which most patent appeals are directed for various reasons which we need not consider here.

Interferences

The suggestions made in the first of this series (March journal) relating to the keeping of records for patent purposes had in mind mainly their use in connection with possible Interferences which might be declared by the Patent Office. These procedures are extremely complicated and highly technical in character. They are merely noted here as they have for their purpose that of determining the question of priority of invention between two or more parties claiming substantially the same patentable invention in two or more patent applications or inapplications and a patent.

Recent Patents

2,596,969—**Merck—Fermentation Process for Producing Grisein.**

2,596,974,2—**A. E. Staley Mfg. Co.—Nutrient Compn. for preparation of Streptomycin.**

2,597,247,8—**Smith, Kline & French Labs.—N-substituted Amino-Ethanols.**

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Industry's Books

Opportunities In Beauty Culture, by Florence E. Wall, Chemist and Author, 112 pp., Paper bound, Vocational Guidance Manuals, Inc., New York, $1.

The necessity for a well-groomed appearance has resulted in a vast industry which has brought with it an accompanying demand for operators, technicians, and specialists in making, selling, and using the materials in the field of cosmetics. In developing these key products and treatments, there has been created a large number of positions which offer young people many more opportunities for employment and advancement than formerly existed. In addition to the position of manicurist, hairdresser, appointment clerk, masseur, and demonstrator, there are now the salesman, advertising specialist, promotion manager, writer, research worker, teacher, and many others. This manual is a good source of information regarding the opportunities in this field for steady employment and what advancement may be expected.

Livestock Health Encyclopedia, Compiled and Edited by Rudolph Seiden, Ch.E., F.A.I.C., Consultant on Veterinary Pharmaceuticals, Disinfectants and Insecticides, 614 pp., Illus., Springer Publishing Co., Inc., New York, Cloth, $7.50.

This book answers clearly and specifically all questions on improving the health and controlling the diseases and parasites of the large farm animals. It gives you the latest methods and practical recommendations of 314 livestock experts on how to improve the health and value of farm animals; how to recognize, prevent and control their diseases and parasites; what to do in emergencies and how to avoid complications; which veterinary drugs, disinfectants, insecticides, and feed supplements to use and how. There are approximately 3700 entries in this work arranged alphabetically for easy reference. There are also pointed subheadings which arranges the information by cause, sympoms, diagnosis, treatment, eradication, prevention. Or, when you look up a veterinary product you find medication or disinfestation separately for cattle, hogs, sheep, and horses; dosage and the best way of application is stated in every case. You will also find here a factual article on every important subject; not only on diseases and drugs but also on all other livestock health matters, such as; common symptoms like anemia, bloating, lameness; chemical tests; vitamin content of feedstuffs; mineral requirements of animals; artificial insemination; sterility in livestock; difficult calving; docking; overstocking; medical wallows, carcass disposal. Treatments are described step-by-step; also directions for tests, exact formulas, solutions, dosages; warnings and cautions when needed; what to do in emergencies; when to call the veterinarian.

The Terpenes Volume III, The Sesquiterpenes Diterpenes and their Derivatives, by Sir John Simonsen, D.Sc., Director of Research, Colonial Products Research Council, and D. H. R. Barton, D.Sc., Reader in Organic Chemistry, Birkbeck College, University of London with Addenda to Volumes I and II by Sir John Simonsen and Dr. L. N. Owen, 579 pp., The University Press, Cambridge, $10.

Since publication of the first edition, knowledge of the chemistry of the dicyclic terpenes and the sesquiterpenes has greatly increased. It was found desirable, therefore, to devote Volume II to the chemistry of the dicyclic terpenes, and to include in a third volume the sesquiterpenes and diterpenes. Literature has been consulted up to the close of 1949, and it has been found possible to include also some references to work published in 1950. Addenda to Volumes I and II to bring them up to date are also included at the end of this volume. Contents: Part I. The Sesquiterpenes and Their Derivatives. Chapters I. Hydrocarbons. II. Alcohols. III. Aldehydes. IV. Ketones. V. Lactones, Ketone-Lactones and Hydroxy Keto-Lactones. Part II. The Diterpenes and Their Derivatives. Chapters I. Hydrocarbons. II. Alcohols and Phenols. III. Oxide. IV. Keto-oxide. V. Acids. VI Lactone.

Pharmaceutical Preparations, by George E. Crossen, Ph.D., Dean and Professor of Pharmacy, Oregon State College, and Karl J. Goldner, Ph.D., Professor of Pharmacy, University of Tennessee, Third Ed., 265 pp., Lea & Febiger, Phila., $4.

For this third edition, the authors have carefully revised the text and have brought it into complete accord with the 14th Ed. of the U.S.P. and the 9th Ed. of the N.F. More than 300 monographs have been changed or added. There is amplified coverage of therapeutic uses of the preparations, and an added Appendix in which are discussed methods of sterilization. Trade names of products are given whenever they are generally associated with the product. Precautions that should be observed in the handling, storage or use of official pharmaceutical preparations are detailed. The authors have conformed to the system of classification based upon physical characteristics of the preparation, the method used in its manufacture, concentration of the product and the use for which it is intended. Each of the various classes is discussed separately, in an order considered by the authors to provide the best form of continuity. It is as members of the various classes rather than as individual entities that the separate preparations are discussed. Valuable background material is furnished in the brief summaries of the Harrison Narcotic Act and the section of the Federal Food, Drug and Cosmetic Act pertaining to "dangerous drugs."

Condensed Review of Pharmacy, by George W. Fiero, Phar.D., Ph.D., Manufacturing Dept., Esso Standard Oil Co., Seventh Ed., 122 pp., Cloth, John Wiley & Sons, Inc., New York, $3.25.

The object of this publication is to furnish a complete condensed compend of the drugs, chemicals and preparations of the United States Pharmacopoeia, Fourteenth Revision, and the National Formulary, Ninth Edition. The book will be found ideal for the student to review his college work prior to taking examinations or for the pharmacist,

physician or Nurse as a ready reference of the official drugs and preparations. Contents: Part One Practical Pharmacy. Part Two—Galenical Pharmacy. Part Three—Materia Medica. Part Four—Toxicology. Part Five—Elementary Chemistry.

General Chemistry, by Horace G. Deming, Visiting Professor of Chemistry, University of Hawaii, Sixth Ed., 656 pp., John Wiley & Sons, New York, $5.75.

This is an elementary survey of general chemistry emphasizing industrial applications of fundamental principles. In the Sixth Edition of this widely used book, the author makes a special effort to point out what is basically important . . . atomic structure is treated earlier, there is a summary of important points at the end of each of the first 17 chapters, ionic structure is presented in more unified form. To enable the rader to test his understanding frequently . . . simple questions are scattered through the early chapters, testing the reader's understanding of each point as it is made. Each chapter ends with exercises which test the student's capacity for chemical thinking. To make the subject as interesting as possible . . . the author gives examples and cites applications from different fields of engineering. He also uses surprising analogies and interesting figures of speech to catch and hold the reader's interest.

Annual Directory and Buyers' Guide (1952 Edition), 251 pp., 8½" x 11", "The Perfumery and Essential Oil Record," London, 30s.

This new edition conforms with the previous issues which have been quite successful in supplying the manufacturer of perfumes, cosmetics, soaps, and flavors with sources of supply for raw materials and other commodities used in their manufacturing processes. Main sections are: Essential Oils of the British Pharmacopoeia 1948 and Addendum 1951 and British Pharmaceutical Codex 1949; Buyers' Guide to Essential Oils and Prime Materials; Directory of Suppliers (Essential Oils and Prime Materials); Guide To Plant and Equipment Supplies 1952; Dictionary of Perfumery Prime Materials. This new edition also contains considerable technical and statistical information on essential oils, synthetics and related products. It should prove a valuable addition to its predecessors.

Practical Radiography For Industry, by H. R. Clauser, Managing Editor, Materials & Methods, 301 pp., Reinhold Publishing Corp., $7.50.

Unique in its practical, how-to-do-it approach, this useful volume provides radiographers, inspectors, metallurgists, engineers, technicians—in fact, anyone concerned with the non-destructive testing of materials—with concrete working information on modern radiographic tehniques. Here, with the aid of nea rly 200 illustrations including sample radiographs showing actual defects in metal parts, you will find detailed information on set up procedures, exposure factors and techniques, radiogrph quality, films and films processing in addition to a complete coverage of radiograph interpretation, the identification of defects and discontinuities in various materials and discussions of applicable standards. Separate chapters are devoted to radiography with radium and Cobalt 60, fluroscopy and miscellaneous applications including such recent advances as radiation detectors, microradiography and thickness-gaging methods. Latest information is also presented on high voltage radiographic techniques using 1, 2, 10 and 22-million volt X-ray equipment.

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Eye Irritation from Shampoos

(*Continued from page 181*)

flushed with twenty-five to thirty ml. of physiological salt solution to remove the test material. Male and female albino rabbits weighing between three and three-and-one-half pounds served as the test animals.

Observations for ocular pathology were made one hour after instillation of the test material, again at the end of the second hour and daily thereafter. The observation extended for thirty-five days. After preliminary observation on the final day, a two per cent aqueous solution of fluorescein was instilled into both eyes to facilitate the detection of any possible slight abrasion or damage to the cornea that might not otherwise have been readily detectable.

The mucous membranes of the eye are extremely sensitive and hence readily subject to varying degrees of irritation upon the introduction of foreign substances which may result in temporary or in some instances, permanent damage. Those portions of the eye involved and which may be adversely affected are principally the cornea, the iris and the conjunctivae. Irritations of these tissues may be manifest by any one or combination of symptoms such as edema (swelling), chemosis, or redness (accumulation of amounts of blood in certain areas) and discharge. Where an inflammation, ulceration or injury affects the transparency of the cornea, such condition is referred to as corneal opacity. Opacities which encroach upon the pupillary area of the cornea directly reduce the vision, while those which develop outside the pupillary area usually cause considerable visual disturbance due to the diffusion and irregular refraction of light.

In the test method, observed physiological effects are assigned numerical values which form the basis of scoring. Dr. Draize in his presentation will undoubtedly cover this subject thoroughly and it would seem repetitious for us to attempt to do so. We wish to emphasize, however, that the scoring is very heavily weighted in respect to corneal opacity. Specifically, 80 points of a total of 110 points are assigned to corneal opacity.

The objectives in this investigation were twofold: First, to determine whether or not the materials under test were capable of causing permanent ocular damage under experimental conditions, and secondly to ascertain the relative degree of irritation which might be produced.

Controls

As previously mentioned, the eye is extremely sensitive and the introduction of a foreign substance into it invariably induces irritation of various types and degrees even though it may be of a temporary nature with no resulting permanent damage to the tissues. In view of this, and taking into consideration individual animal variation and response, the adoption and

(*Continued on page 255*)

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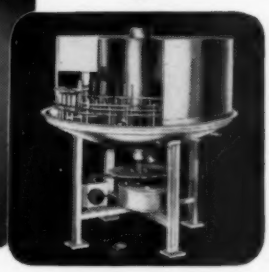

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Perfumer's Shelf

Flavors for Pharmaceuticals

Although liquids are not the most widely used form of medication, says C. H. Becker in the Spring, 1952 issue of *Q.S.* (published by the Florida College of Pharmacy), they are considered one of the most elegant classes of pharmaceutical preparations. No doubt, if most bitter, salty, or other objectionable tasting drugs could be disguised in a liquid preparation, this form of administration would probably be the most frequently prescribed. Pharmaceutical houses know that children prefer flavored liquid products, especially the type that resembles their favorite gum drops or suckers. And, too, they know that adult patients will more easily accept this form of drug. The fact that imitation flavors are becoming increasingly popular is illustrated by their appearance in manufacturers' products and by their being specified on prescriptions by physicians.

In comparing natural with synthetic flavoring materials, Becker concedes that it is almost impossible to prepare an imitation flavor equal in aroma and likeness to the natural. However, close resemblances can be obtained and for the average person the synthetic would be hard to distinguish from the natural. Above all, synthetic flavors are easily reproducible, whereas the natural are difficultly so. It is easy to understand that there are many different types of cherries, raspberries, cocoas, etc., and even the same genus and species will vary in aroma and taste. Geographical location, time of picking, riping, etc., of the natural fruit will have a bearing on the final product. Moreover, the cost of natural flavors is extremely high as compared to the synthetics.

Becker stresses that the blending of esters, aldehydes, volatile oils and other aromatics to reproduce a natural aroma is an art. Very few people possess this art. Most of the formulas for synthetic flavors and perfumes are secret to the companies manufacturing them. They represent years of trial and error picking out undertones, overtones, and other characteristics desirable to the people.

From the standpoint of use of flavors in liquid preparations, artificial flavors answer the purpose. Syrups, elixirs, and the other types of liquid preparation containing artificial flavors would always be standard, easily prepared or obtainable and less costly. The intensity of the flavor could be increased or decreased without much trouble. The product could be colored with a certified coal tar dye to resemble the fruit, if necessary.

A little work has been done on the evaluation of synthetic flavors for disguising the obnoxious taste of drugs. Practically all of the people used in these taste tests admitted that they preferred the synthetic or imitation flavored syrups to the official ones. However, much work remains to be done. According to Becker some of the problems that need work in this highly important field are as follows: (1) Effect of flavor concentration on disguising taste of drug or medicament. (2) Effect of pH of the vehicle. (3) Improved imitation flavor formulas. (4) Effect of decreasing or increasing sweetness of the vehicle. (5) Effect of adding salts and other synergists to augment or enhance disguising powers of the vehicle. (6) Effect of adding topical local anesthetics in small amounts to syrups to numb taste buds. (7) Effect of temperature in administering dosage.

Oil of Cyperiol

According to G. N. Gupta and G. Chandra (*Current Sci. India.* 20:273, 1951) oil of cyperiol is obtained from a tree belonging to the natural order *Cyperaceae*, known in Sanskrit as *Nager mustaka*, and in Hindu as *Nager motha*. The plant produces dark brown tubers yielding an essence with a pleasant odor. The oil studied by Gupta and Chandra, obtained in a yield of 0.31 per cent, had the following constants:

Specific gravity	**0.9898**
Refractive index	**1.5130**
Optical rotation	**-9.14°**
Acid value	**5.36**
Saponification value	**14.87**
Aldehydes	**2.5%**
Acetyl value	**108.0**

The oil has good fixative properties and it is a suitable substitute, partially at least, for patchouli oil.

Anethole

According to A. Wagner (*Manuf. Chem.* 23:56, 1952), anethole, $C_{10}H_{12}O$, also known as anise camphor, isoestragole, *p*-propenyl anisole, *p*-anisyl-2-methyl ether and *p*-propenyl phenyl methyl ether, was first discovered in star anise oil and is the main constituent of both this oil and of anise oil. The anethole contents of anise, star anise and fennel oils are respectively 80-90, 85-90 and 50-60 per cent.

Anethole forms white crystals with a strong odor of anise and an intensely sweet taste. It is optically inactive. The "minimum" congealing point is 20°C., while a congealing point of 21.3°C. has been reported. A recent freezing-point determination gives a value of 22°C. One value for the index of refraction was given as 1.5271, another is 1.56149, while a third value for the index of refraction is 1.56149. The specific gravity at 11.5°C. is 0.999 while at 25°C. this value ranges from 0.983 to 0.987. Anethole is soluble in two to three volumes of 90 per cent alcohol and has a silver iodide value of 100 to 120.

Wagner discusses the formation and synthesis of anethole. He briefly reviews the several patenlia methods for isolating this material from pine oil. Thus, in one process that is described in U. S. Patent 2,502,742, the pine oil is first treated with 25 per cent sulfuric acid in order to convert the terpineol tion terpene hydrate. The acid is then removed, the product washed with water, and alkali added prior to distillation of the oily fraction in steam. The residue is then acidified, the distillation resumed, and the crude terpineol purified. The oily fraction contains methyl chavicol, fenchyl alcohol, borneol, camphor, hydrocarbons and dihydroterpineol, and is warmed with alkali to convert the methyl chavicol into anethole.

Anethole is widely used for flavoring pharmaceuticals and dentifrices. It is also employed extensively in soap

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perfumery. It is the chief constituent of anise and fennel oils, both of which are used in preparations of the British Pharmaceutical Codex. A lesser-known pharmaceutical application of anethole is its possibilities as a rew material for the manufacture of estrogenic substances.

Organic Chemistry's Debt to Perfumery

In his discussion of the debt of organic chemistry to perfumery, G. M. Dyson (*Perf. & Essent. Oil Rec.* 43:72, 1952) observes that one of the main contributions of perfumery to organic chemistry is the process of distillation in steam, which is a tool of value in many departments of the science. The ancients used such distillations for obtaining the essential oils from vegetable matters and, for good measure, added the process of sublimation in the purification of thymol and camphor, thereby enriching organic chemistry. This addition to chemical engineering is paralleled in chemical reactions by a whole series of contributions which perfumery has made to chemical science. In many cases the isolation of minute quantities of characteristically odorous materials from natural sources has led to attempts designed to obtain them by synthetic means. In the prosecution of this research new methods and new types of compound have come to light which have materially advanced the science.

Two reactions in particulars owe much to perfumery—the Grignard reaction and the sodamide/acetylene reaction with aldehydes. In the former, many of Barbier & Grignard's investigations were concerned with the chemistry of the terpenes, especially α-terpineol and the application of the Grignard reaction to this field developed, at the instance of perfumery, a valuable synthetic tool. In this connection, it should be noted that the process of degradative oxidation (e.g. the stepwise breaking down of a molecule by controlled oxidation) was first developed in relation to the study of the configuration of perfumery materials.

Dyson also points out that the study of perfumery substances has had a profound effect on the chemistry of rings—both five-membered and macrocyclic. The study of the active odorous principles of jasmine has given an impetus to the study of five-membered rings.

In Dyson's opinion one of perfumery's greatest contributions to organic chemistry is the stimulus which it gave to the study of macrocycles. In addition there is no doubt that organic chemistry owes a considerable part of its knowledge of the more unusual lactones to the stimulus which perfumery and flavour-science has given to the study of simple lactones.

Balsam of Peru

In discussing balsam of Peru and its sources, R. Cortesi (*Bull. soc. pharm. Bordeaux* 89:141, 1951) observes that the yield of oil from the sound tree is 0.74 per cent while that from the wounded tree is 1.08 per cent. He reports that the oil obtained from sound specimens of *Myrozylon Pereira* contains 28 to 30 per cent of cadinenes, 30 to 52 per cent of free *d*-nerolidol, 12 to 14 per cent of free *l*-cadinol and about 2 per cent of esterified alcohols. Oil obtained from wounded trees contains 6 to 8 per cent of cadinenes, 68 to 70 per cent of free *d*-nerolidol, 7 to 9 per cent of free *l*-cadinol and about 6 per cent of esterified alcohols.

Hop Resin and Hop Oil

In a paper presented before the Division of Agricultural and Food Chemistry during the 121st meeting of the American Chemical Society, F. E. Connery and R. Wright observed that although hops have been used for many centuries as a flavoring agent in beers, it has only been in comparatively recent years that the need has been recognized for a more exact knowledge of hop constituents and their function in the present-day science of brewing. The analytical work in regard to hops has divided itself into two main categories, that concerned with the so-called "brewing resins" and the essential oils known as hop oil. Both the resins and oils are complex substances, and the individual functions of each component part are not as yet clearly understood, although progress is being made in this direction.

Thus, it has been learned that between 10 and 20 per cent of the hop cone is made up of resins: alpha-resin or humulon ($C_{21}H_{30}O_5$), beta-resin or lupulon ($C_{26}H_{38}O_4$), and gamma or hard resin, which is believed to be of little importance. When hops are dumped into the brew kettle, these resins isomerize and may even oxidize to acids that heighten the flavor of the end product.

The essential oils in hops usually amount to less than 1 per cent, but these ingredients are responsible for the aroma of the beverage—an important factor especially in ale production. The brewing process destroys the sensitive oil constituents, so that, for full aroma, dry hops must be added either at the end of the brewing cycle or to the finished beverage in storage. To date 31 compounds have been identified in the hop oil. These include caryophyllene, pelargonic acid, myrcenol, geraniol, and linalool.

Neroli and Absolute Orange Flower Oils

In the second part of his discussion on orange flower oils, F. Chatelain (*Perf. & Essent. Oil Rec.* 43:79, 1952) observes that the constituents of the material absolute oil obtained from the bizarade (bitter) Orange flowers are nearly all the same as those of the natural bizarade neroli oil. However, in the natural absolute orange flower oil, the terpenes are present in a smaller proportion, and methyl anthranilate in a much greater proportion. The table below gives the comparative approximate constitution of these two oils:

Constituents	*Absolute Orange Flower Oil per 1,000*	*Neroli Oil per 1,000*
Terpenes (Pinene, Camphene, Limonene, Dipentene, etc.)	240	360
Paraffins C.27	v.s.q.	v.s.q.
Phenylethyl alcohol	20	10
Linalool	360	350
Benzyl alcohol	v.s.q.	v.s.q.
Terpineol	60	30
Nerolidol	60	50
Geraniol	30	24
Nerol	20	16
Farnesol	v.s.q.	v.s.q.
Linalyl acetate	110	100
Methyl anthranilate	50	6
Geranyl acetate	18	18
Neryl acetate	12	12
Benzoates, Phenylacetates and Palmitates	v.s.q.	v.s.q.
Decyl aldehyde	v.s.q.	v.s.q.
Benzoic aldehyde	v.s.q.	v.s.q.
Phenylacetic aldehyde	v.s.q.	v.s.q.
Ketone (jasmin probably)	v.s.q.	v.s.q.
Indole	0.6	0.6
Phenylacetic acid	v.s.q.	v.s.q.
*Para*cresol	v.s.q.	v.s.q.

v.s.q. = Very small quantity.

Animal Health

Salt in Poultry Rations

Experimental evidence on the amount of salt acquired by chicks, says G. F. Heuser (*Poultry Sci.*: 31:85, 1952) varies considerably. Salt functions in various ways and this may have some bearing upon the levels recommended. For example, the addition of a small amount of salt to the average chick ration usually improves growth. Further additions have no effect but growth is finally depressed when large amounts are included. It is also thought that salt influences the palatability of feed. In this case it should affect feed intake and possibly feed efficiency. Excessive amounts of salt are toxic and will increase mortality. Three per cent is usually considered the lower level to show an effect in this respect. In addition, it has been frequently noted that high salt diets increase the water consumption which has an effect on the consistency of the droppings and results in the litter having to be changed more frequently.

In his own studies, Heuser found that a small amount of added salt improved the growth of chicks to eight weeks of age. The total minimum salt requirement in his experiment was approximately 0.65 per cent. Increased amounts of salt increased water intake and raised the moisture content of the droppings.

Considering all factors for the representative chick ration used in his study, Heuser is of the opinion that the addition of ¼ per cent of salt was sufficient.

Also pertinent is the report by C. H. Burns, W. W. Cravens and P. H. Phillips (*Poultry Sci.* 31:302, 1952) on the salt requirements of breeding hens. They found that the minimum requirement for sodium chloride by breeding hens fed purified diets is approximately 0.19 per cent of the diet. In a sodium chloride deficiency, the sodium appeared to be the limiting factor, and that chloride in considerable excess of sodium may have had adverse effects.

The chief effect of sodium chloride restriction from the diet of the breeding hen was a lowering of egg production. Body weight was only slightly decreased and hatchability was not affected. The sodium content of eggs produced by sodium chloride deficient hens was not appreciably lowered, and chicks hatched from such eggs were unaffected by deficiencies of sodium chloride in the maternal diet provided the chicks received adequate sodium.

Purdue Poultry Ration

According to a report from the Purdue News Service, issued during June 1952, an improved poultry ration was developed at Purdue University under the direction of C. W. Carrick and coworkers in the department of poultry. He tried various means of improving the old ration such as adding excessive amounts of vitamins, antibiotics, or amino acids. Carrick found that the improved ration worked out under experimental conditions can be made into a practical ration by substituting certain of the purified ingredients with common feed materials. For example, the amino acid, DL-methionine can be replaced with 5 per cent corn gluten and the corn reduced accordingly. The dry vitamin A can be replaced by 2 per cent of high vitamin A dehydrated alfalfa. It is entirely feasible to have a chick starting ration with approximately 50 per cent of ground yellow corn and 35 to 37 per cent soybean meal. Carrick says that this high percentage of soybean meal in poultry rations is justifiable when cost, efficiency, and biological results are considered. For young chickens where the amino acid requirements are more exacting, soybean meal has a special place.

The Purdue study showed that although soybean meal and corn can make up a large portion of poultry rations, they are often deficient in sulfur-bearing amino acids, calcium, phosphorus, salt, iodine, manganese, riboflavin, pantothenic acid, niacin, choline, and perhaps other growth factors. The Purdue ration has been found to give as rapid growth as any ration used by Purdue poultry researchers. The ration, in percentages, is: ground yellow corn 53, soybean oil meal 38, condensed fish solubles 3, steamed bone meal 1.5, ground limestone 1.5, iodized salt 0.45, and small amounts of manganese sulfate, dry vitamin D mixture, dry vitamin A, DL-methionine, choline, and riboflavin, calcium pantothenate and niacin.

Hormones for Udder Growth and Lactation

In the investigations reported by W. F. Riley and his associates (through *J. Am. Vet. Med. Assoc.* 120: 195, 1952) pellets containing 4 Gm. of progesterone and 2 Gm. of diethylstilbestrol were implanted in nonbreeding heifers and cows in an effort to induce optimal udder growth and lactation. These pellets were removed 104 days later. The heifers produced 331 and 323 pounds of butter fat and 6,622 and 6,681 pounds of milk, respectively. One cow reached a peak of 80 pounds of milk daily and produced 163 pounds of butterfat during her first 61 days of milk. Factors which are believed to influence experimentally induced udder growth and lactation include: (1) ratio of the two hormones; (2) total amount of hormones absorbed; (3) duration of implantation; (4) site of implantation; and (5) character of the tablets. Progesterone is believed necessary for optimal udder growth and for overcoming undesirable features of unhindered diethylstilbestrol stimulation.

Vitamin E for Improved Turkey Storage

According to the findings of A. F. Morgan (through *Science News Letter* 61:200, 1952) turkeys fed diets high in vitamin E stay fresh longer in cold storage. The vitamin, tested at various amounts for different periods, produced best results at the rate of 0.1 per cent of the total feed for 35 days prior to killing for storage. Vitamin E retards fat breakdown in the birds during cold storage. The more vitamin present in the bird, the less rancidity was found by taste panels testing birds stored as long as nine months. Greater retention of vitamin E was found at low level feeding for 35 days than feeding large amounts for two and a half days prior to killing. The vitamin was mixed with the regular feed during the tests. Commercial feeding of extra vitamin

E by turkey growers would depend on the cost of the vitamin.

The birds actually retained a small fraction of the total vitamin eaten. Storage of the vitamin is greatest in the liver, with the breast, gizzard, leg and breast muscles following.

Role of Ascorbic Acid in Reproduction

It is noted in the *Indian Journal of Velerinary Science and Animal Husbandry* (through *J. Am. Vet. Med. Soc.* 120: 374, 1952) that information has accumulated to show that ascorbic acid plays an important role in the regulation of normal reproductive processes. It appears to be connected with the synthesis of certain hormones. It has been observed that a deficiency of ascorbic acid has been followed by failure of pregnancy, premature birth or stillbirth. This is presumably due to the decreased synthesis of the hormone which is primarily responsible for the implantation of the fertilized ova and the maintenance of pregnancy, *i.e.*, progesterone. It also may explain why fertility is restored in certain impotent bulls and "hard-to-settle cows" following ascorbic acid therapy.

The ascorbic acid content of the ovaries obtained from buffalo cows at various stages of the estrous cycle has been estimated. Comparing the two ovaries from the same animals, those in which ovulation had occurred recently were found to contain 19.38 mg./100 Gm.; the other ovaries, 15.56 mg./100 Gm. Persistent corpus luteum is characterized by a very low concentration of ascorbic acid, when compared to normal corpus luteum. Ascorbic acid content of corpus luteum obtained from animals in early pregnancy does not differ from those obtained from nonpregnant animals.

Treatment of Vibriosis in Cattle

Vibriosis infection, says J. B. Herrick (*North Am. Vet.* 33:324, 1952) seems to be on the increase. In discussing the treatment of this condition, he observes that vibriosis appears to be a self-limiting disease, yet in some herds it will cause trouble for several months. It is thought that some cows develop an immunity to the disease, the duration of which is not known. In many herds it has been found advisable to give the entire herd 30 to 40 days of sexual rest, keeping accurate records of their estrous cycles during this rest period. The use of antibiotics (intrauterine infusions) at the completion of the rest period has improved the breeding efficiency considerably in many herds. This treatment consists of 1 Gm. of streptomycin and 200,000 units of penicillin in 40 cc. of physiological saline or 5 per cent dextrose which is carried into the uterus with an inseminating pipette. One-half of the solution is desposited in each uterine horn. This type of treatment has given good results when deposited in the uterine horns 24 to 36 hours prior to breeding.

Although there is not sufficient evidence to prove that the bull may be a carrier of the disease, many herdsmen, where the herds are bred naturally, are collecting semen from their bulls, diluting it with streptomycin-treated diluent and inseminating their cows artificially.

Hormonal Therapy in Breeding Bulls

The problem of sterility in the breeding bull, says E. S. Becerra (N. Am. Vet. 33:21, 1952) is always much more serious than in the cow. A sterile bull or one of low fertility occasions enormous economic losses because it results in the temporary sterility of all the cows that do not settle after service. Hormonal therapy is undoubtedly a powerful means of counteracting sterility, but at present sufficient research has not been done to discover the exact role played by hormones in the reproductive function of the bull. Undoubtedly this explains why contradictory results in the use of hormones are found in professional publications, even in those dealing with the same type of functional sterility, in which, theoretically at least, hormonal therapy is clearly indicated.

To clarify the picture, Becerra reviews the data on the value of hormonal therapy in the breeding bull and summarizes this knowledge as follows: 1. Hormonal therapy in the bull fails mainly because of difficulties in making a specific diagnosis and because of a lack of fundamental knowledge of the role of endocrine glands in the reproductive function in the male. 2. In using hormonal therapy for reproductive disturbances in the breeding bull a great deal has been assumed without precise justification. 3. Hormonal treatment seems to be more effective in bulls aged between three and six years. 4. In dealing with hormones in the bull it is better to use small dosages and repeat if necessary. When hormonal preparations are of a protein nature, responsiveness to treatment will be less effective with repetition. 5. Pregnenolone may become a helpful agent in correcting infertility in the breeding bull.

Rabbit Ear Mange Treatment

According to the *American Rabbit Journal* (21:67, 1951) an 0.25 per cent solution of lindane in oil, applied with a swab, is the most effective and economical method of treating rabbit ear mange. The journal advises treating all rabbits in any hutch in which the disease is discovered, treating the most seriously infected animals last.

Aureomycin Effect on Growing Chickens

In the studies made by J. L. Machlin, L. A. Denton, W. L. Kellogg and H. R. Bird (*Poultry Sci.* 31:106, 1952), it was observed that the protein requirement for early growth of chickens appeared to be decreased slightly by addition of aureomycin to the diet. Aureomycin stimulated growth most effectively when added to a diet containing 19 per cent protein. It was less effective with lower levels. Aureomycin increased efficiency of feed utilization when added to a corn-soybean diet containing vitamin B_{12}. The effect of the aureomycin was more pronounced with increasing protein levels.

Effects of Diethylstilbestrol on Roosters

A study was carried out by R. C. Bryant and R. E. Moving (*Bimo. Bull. No. Dakota Agri. Exper. Station* 14:190, 1952) to determine the effects of diethylstilbestrol pellet implants on weight gains and market qualities of roosters one year of age. An attempt was also made to determine the optimum number of pellets to implant and the most satisfactory time of implantation in a four week period before slaughter. In addition, responses of various breeds to the treatments was studied. Favorable gains in the form of extra tissue fat and finish were observed in all groups, although untreated birds gained somewhat more over-all weight. The optimum number of pellets to administer over a four week period appears to be two, both given at the same time, at the beginning of the first week. All breeds seemed to respond favorbly to the treatment, and all showed comparable and favorable responses.

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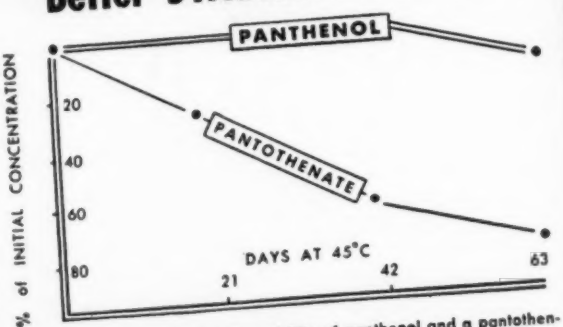

A comparison of the relative stability of panthenol and a pantothenate in a liquid multivitamin preparation at pH4. Data from Rubin; J. Am. Pharma. Assn. (Sci. Ed.) XXXVII, 12, 1948.

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(1) Rubin, et. al.; Journal of Nutrition, 35: 499, 1948.
(2) Rubin, et al.; Federation Proceedings, 8: 1, 1949. (J. Nutrition, 40: 265, 1950).

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Abreast Of The Markets

Very Few Price Changes in July, Markets Sluggish; Synthetic Vitamin A Permissible in Oleomargarine

There were extremely few price changes in the market last month, as might be expected during the heat of the summer when business transactions ordinarily slow up. As far as the essential oils were concerned, those of Chinese origin, like anise and cassia, were becoming much tighter, and there were signs indicating that their replacements will be next to impossible through any import channels, unless truce negotiations in Korea develop into a reality. Clove bud oil became even more difficult to find, mostly because distillers in this country have all but closed down operations as a result of the relative high cost of importing the buds in relation to the government-allowed ceiling price of the oil. Judging from the few price changes in the essential oils, the market is pretty well stabilized at the present time, although some oils have yet to come down to levels more favorable to the consumer.

In the botanical field there was very little activity. Ergot continued to drop a little more, but as yet there was no accompanying desire to buy on the part of consumers. Some houses reported that, while they had considerable stocks on hand, and expected to complete their inventories on the important items, they felt that their ultimate supplies would be just about large enough to see them through the winter of 1953. Some were advising their customers to put their orders in early so as to be sure of getting what they wanted.

On the chemical side, the steel and petroleum strikes came to an end last month, an event which helped the national economy start returning to some point near normal. Large synthetic-alcohol producers were stepping up their output again after having virtually shut down operations.

All in all, the markets last month were generally very sluggish, representing an over-all mid-summer relaxation period.

Vitamin A Under Scrutiny

With the government approval of synthetic vitamin A in oleomargarine taking effect the 19th of this month, there is a rather wide difference of opinion as to the outcome of the vitamin market. Some authorities believe there will be no change at all in the present status, while others state that once the synthetic vitamin is permitted, as well as the natural product, pending the decision of the individual manufacturer, stiff competition will develop between the two vitamin A sources. Only time will tell which of these two beliefs is correct, but it will prove interesting to watch the development.

Santonin Down to $118

The Santonine Company of America announced last month that their production of santonin had reached the stage where they are now able to take care of requirements promptly. At the same time they reduced the price so that it now ranges from $118 to $126 a pound.

Little Activity in Carnauba

There have been very few offerings from Brazil recently on carnauba wax, mostly because of the large part the Brazilian government has been taking in the subsidy program. So much wax, it is reported, has been going into loan under the financing program, that there is very little material left to export. While spot prices at the present time range from $1.28 to $1.30 for No. 1, and from $1.03 to $1.04 for refined No. 3, these do not represent the higher replacement costs which will be felt later on.

Anethole in Good Supply

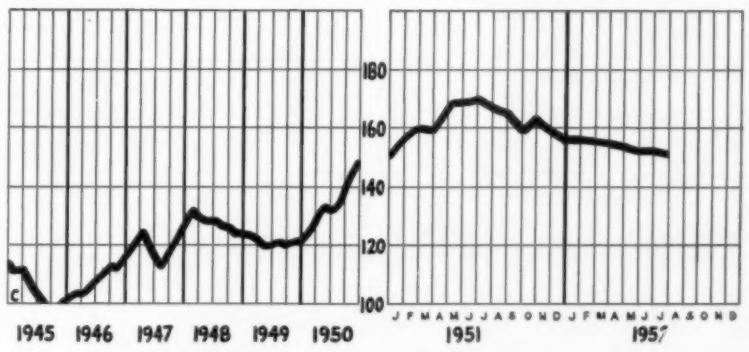
With the increasing difficulty in obtaining anise oil, anethole is being favored more as a substitute, although it has not reached any great proportions yet. If and when the anise-oil stocks in this country become depleted, anethole producers expect a jump in the demand of their product. The price last month ranged from $1.27 to $1.60, as compared to $1.90 to $2.35 for the oil.

Vanilla Beans Sluggish

Although there has been some increased interest in vanilla beans, the overall tone is rather soft. The low prices now in effect ($2.75 to $3.25 for the Bourbons, $3.20 to $3.45 for the Mexican cuts, and $4.00 to $4.50 for the Mexican whole beans) are said to be discouraging vanilla cultivation in Mexico. Reports have been received to the effect that some higher prices have been asked in Madagascar, which suggests that there may be an upturn

(*Continued on page 248*)

25 Cosmetic Raw Materials—Unweighted Price Index. 1926 = 100



The cosmetic raw materials index went down slightly from 153.2 to 151.8 Balsam Peru and tolu were lower.

Prices quoted in this section were current on the first of this month.

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Alcohol Demand Steady; Cuba Lowers Blackstrap Price; Glycerine Situation More Favorable; Caffeine Off 50c, Ergot Much Lower

The demand for alcohol last month seemed to be holding up to a pretty normal level for this time of the year when business activities slip off, in spite of the effects of the steel strike which was beginning to slow down many other industries as well. Supplies were said to be ample for that period.

Of equal importance in the alcohol picture last month was the settlement of the molasses price disagreement between Cuba and the dealers in the United States. Although the Cuban Sugar Institute agreed to reduce its price to 12c a gallon there is 2¾ per cent export tax which must be paid by the dealer, and added to that, the transportation charge, so actually the price is not as low as it would initially seem.

This Institute, later in the month, however, did sell several million gallons of molasses to a major fermentation-alcohol producer in the United States at 12 cents a gallon, f.o.b. Cuba. In the transaction, the Cuban firm stipulated that the company could buy a maximum of 15 million gallons in a thirty-day period, and repeat the purchase during each subsequent 30-day period for seven months.

This deal, presumably, was made in order to attract additional fermenters into the molasses market and thereby help Cuba get rid of the molasses surplus, which is over 400,000,000 gallons, before the new crop starts coming in at the end of this year.

The one question still remains as to whether consumers of blackstrap molasses will try to hold off buying molasses until a later date, hoping that, in their desperation, the Cubans will put the price down further. The longer the Institute holds onto the molasses, which is glutting the storage facilities, the more reckless will they become in disposing of it in order to make room for the new material expected in early 1953.

The Alcohol and Tobacco Tax division of the Bureau of Internal Revenue, Treasury Department, last month released the following data on the supply, production, withdrawals, and stocks of ethyl, completely denatured and specially denatured alcohol during May, 1952, as compared with May, 1951.

Production

	Proof gallons	
	1952	1951
Ethyl	26,062,133	46,173,189
*Completely denatured	22,263	110,171
*Specially denatured	16,449,263	27,952,991

Withdrawals

	Wine gallons	
	1952	1951
†Ethyl, tax paid	1,394,984	1,720,771
tax free	40,479,381	59,080,238
*Completely denatured	21,211	82,173
*Specially denatured	19,964,361	27,415,851

Stocks

	Gallons	
	1952	1951
†Ethyl	82,368,719	91,086,866
*Completely denatured	41,814	56,945
*Specially denatured	8,508,574	8,887,026

* Wine gallons. †Proof gallons.

Caffeine Reduced 50c

An important source of caffeine last month suddenly reduced the price by 50c to establish the 100-pound lot for hydrous material at $3.30, and for anhydrous, at $3.50.

Glycerine Becoming Easier

With the seasonal low in the soap-producing industry, coupled with the petroleum strike, settled in mid-July, both natural and synthetic glycerine stocks were at a very shallow point late last month. The total loss to the synthetic glycerine industry was estimated by some to be well over 10,000,000 pounds. Supplies of both commodities were expected to continue on the tight side through the month of August, with relief due in September. The price of the material has remained steady at about 34 cents a pound.

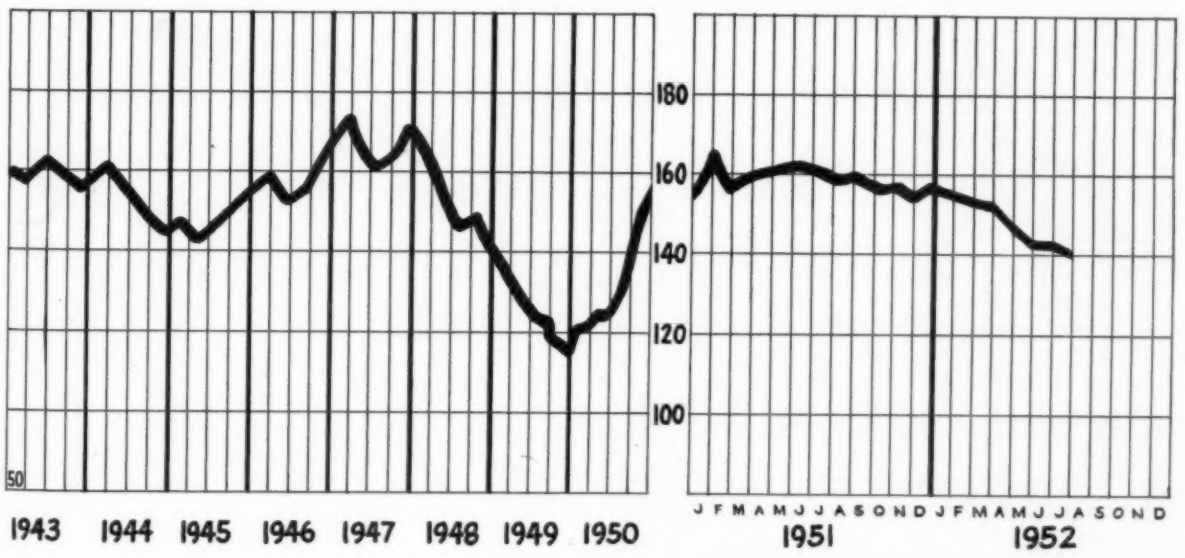
Ergot Down to $3.75

Some botanical houses reported ergot prices at $3.75 last month, with others quoting as high as $4.75. In spite of this reduction, there was not very much activity in that item last month, apparently because, although the price has declined considerably from its $7 level of a short time ago, it still is not attractive to the consumer.

Little Demand for Agar

The price of Agar has remained around $1.90 for the No. 1 grade, and, while there have been quite a number of

50 Raw Materials—Weighted Price Index. 1926 = 100.



The price index of fifty commodities for July fell slightly from 141.3 to 140.1.

July Price Changes

UP
Anise Oil 15c

DOWN
Anethole 3c
Balsam Peru 10c
Balsam Tolu 40c
Caffeine 50c
Citral 10c
Citronella, Ceylon 10c
Ergot 75c
Geranium Oil, African $1.25
Bourbon $1.25
Golden Seal Root 25c
Mercury $10.00
Pine Needle Oil 40c
Santonin $6.80
Thyme Oil White NF 25c

inquiries on this item, according to spokesmen, very little business has been transacted since there is hardly any material available at the present time.

Lanolin Demand Steady

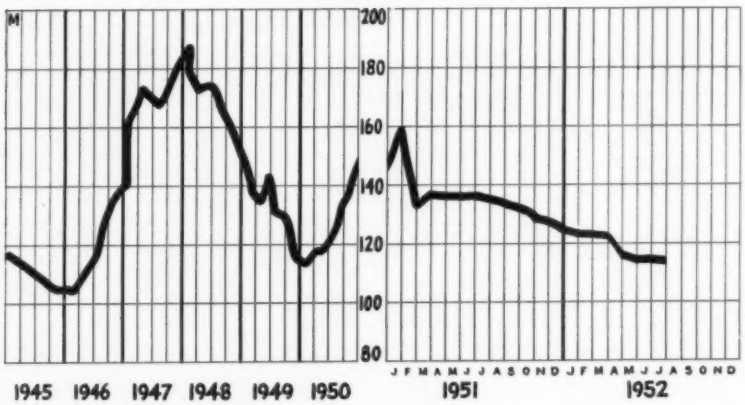
Although demand for lanolin is said to be quite active, with increasing numbers of hair preparations incorporating that product on the market, the supply problem still looms as big as ever. The crude wool grease, source of lanolin, is still on the limited side. There has been some increase in wool-scouring operations in the United States and in foreign countries, but the anticipated lanolin is expected to be less than U.S. needs.

Vanilla Beans Sluggish

(*Continued from page 245*)

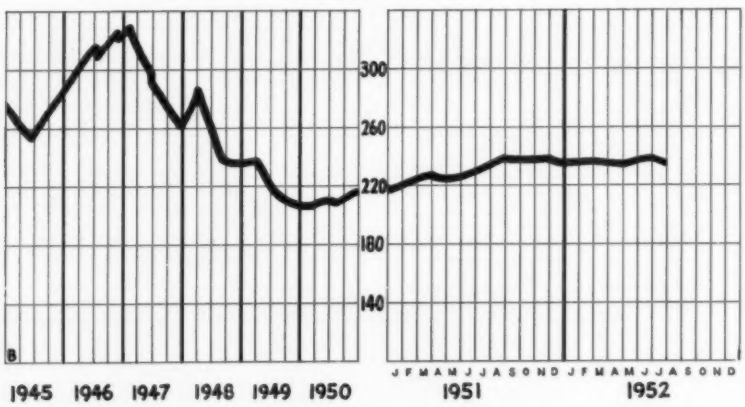
in the market in a few months. In any event, the current low prices in this country are probably serving as a deterrent on many growers in Madagascar and causing them to resort to more profitable occupations, thereby deserting their vanilla plantations.

15 Medicinal Chemicals—Weighted Price Index. 1926 = 100.



The medicinal chemicals index declined very slightly from 113.5 to 113.4. Quicksilver was lower.

15 Botanicals—Weighted Price Index. 1926 = 100



The botanicals index dropped from 236.2 to 234.1. Balsam tolu and ergot were lower.

Menthol Inactive

Menthol is being maintained at $6 a pound for the Brazilian material, and $6.70 for small shipments which recently arrived from Japan. There is not much interest for the Japanese product at that price, according to sources, and besides, there is enough menthol on spot at the present time to take care of the normally sluggish demand during the summer.

Bois de Rose Unchanged

This oil remained between $4.50 and $5 last month, with demand on the light side owing to the fact that many of the consumers had comfortable inventories left over from previous buying periods.

Balsam Peru at $1.75

Balsam Peru dropped off a little last month from the previous figure of $1.85 because of reduced competition among the producers at the origin. Balsam tolu followed suit also by dropping from $5.05 to the new level of $4.65 a pound.

Citronella Oil Expected Lower

With citronella oil prices now at 80c for Ceylon and 65c for the Java, lower prices are to be expected soon, according to some sources, who report that the quotations in Formosa dropped after the shipments had left port. In other words, until the material, which is in transit now, is consumed, and new oil at the lower price is imported, the price of the oil will remain close to the current levels. Several soap manufacturers are turning to the cheaper Java oil in favor of the Ceylon, their customary choice.

Spearmint Oil Tightening Up

Stocks in the Midwest are extremely low, which, coupled with the fact that the new crop was not yet ready last month, encouraged the high prices ranging between $8.25 and $9. Spokesmen have remarked that sales on new-crop material have been completed as far ahead as November and December.

The situation has been helped a trifle in recent weeks by the arrival here of several small shipments of the oil from Japan.

Of course, it is much too early to draw any conclusions at this time, but there is the interesting possibility that both peppermint and spearmint oils may be used more heavily in the future, as the chlorophyll products take hold. In their search for flavors to mask the chlorophyll taste, several tooth paste manufacturers have started using these oils, though the amount is not yet sufficient to affect the market. At any rate, this development will be very interesting to watch.

Anise Oil Shortage Near

With each succeeding month the anise oil supply tightens more and more, and spot stocks become less and less. With replacements almost impossible at this point, some users have resorted to anethole instead of the oil. Some dealers are quoting the oil at $1.90, while the bulk of them range from $2 on up to about $2.30.

A few dealers report there is still sufficient material on spot for the present time but suggest that a shortage is just around the corner.

Orange Oil Stands Firm

There were signs of a brief drop in the Florida orange-oil price last month to $1.70 in some quarters, although other houses are maintaining their prices at $1.80. The California Exchange brand oil is still at $2.75. With the summer demand at its height, and the supply in not too good a position as far as Florida is concerned, there is the possibility that the price will begin to climb higher during August until the cooler Fall months arrive.

When Florida over-produced the oil to such a great extent last year, many of the large producers turned exclusively to the frozen juice market, completely discarding their essential-oil equipment. This accounts for the fact that there are no excessive amounts of the oil available at this time. Apparently there are enough producers in existence, however, to prevent a repetition of the 1951 shortage.

Cassia Oil Limited

Cassia oil is closely paralleling anise in the supply situation, with one house reporting the cancellations of all orders owing to a lack of material. Although other firms report a sufficient amount on hand this month, the belief is that there will be a general shortage in a few months, as matters stand at the present time.

Bergamot Oil Still Limited

With prices of bergamot oil remaining between $15 and $17.50, there has been very little sign of any easing off of the situation. There have been reports, however, that the Consortium in Italy has been making more reasonable offers for shipment of the oil to this country.

Clove Oil Higher than Ever

The price of clove bud oil climbed to a new high last month, ranging from $7.50 to $8.50, and this was mostly a nominal price because it was just about impossible to find any domestic oil around. It has become so difficult, price-wise, to import the buds at higher-than-ceiling prices (for the oil), distill the oil in domestic plants, and make a profit on the oil under the current government price restrictions. By and large most of the distillers in this country have completely dropped out of the market and are importing the oil directly from Europe or the origin.

Lemongrass Oil Steady

Lemongrass oil being one of the chief sources of citral, from which B-ionone and synthetic Vitamin A are produced, there was some speculation that, with the U.S. granting permission to manufacturers to use the synthetic vitamin in oleomargarine this month, there might be an increase in demand for the oil. Authoritative sources, at the present, however, say this is not so, and that oleo manufacturers will stick to the natural vitamin as long as the price remains favorable. At any rate, it would be wise to keep an eye on this oil, just to see what happens.

Lemon Oil Active

Lemon oil remained in a very strong position last month, with the demand up, and the spot stocks rather limited. The Exchange brand in California was being quoted at $6, and independent producers, in some cases, were holding on to values around $5.75 up to $5.90—and very little oil to offer.

Patchouli Unchanged

Spot stocks in this oil were very well filled last month, a sign that there has been slight interest in the item for quite some time. Toward the end of the month, there was talk that shipping prices had been raised by as much as 75c a pound. This would make little difference to consumers in this country at the present time, as there is so much material here that replacements from the origin will not be necessary for quite some time.

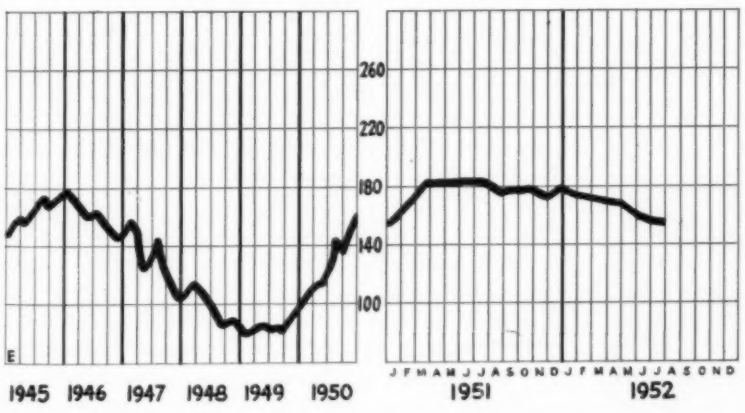
Geranium Oil Lower

Both the African and Bourbon oils were priced the same last month, at $13.75 and extending up to $15. The Bourbon oil was in better supply than the other, and replacements could be had without much trouble. The Algerian material was on the scarce side.

Wormseed Oil Limited

There is very little good-crop oil available at the present time, and what remaining there are, are dwindling from week to week. Dealers do not expect any relief from the present shortage of materials until later in the year when the new crop arrives. The range extends from $8.50 to $9.

15 Essential Oils—Weighted Price Index. 1926 = 100



The essential oils index declined from 159.2 to 156.0. Anise oil was higher; citronella and geranium oils were lower.

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Proteolytic Enzymes in Medicine

(Continued from page 179)

Pointing out that streptokinase and streptodornase are not specific curative agents, but are valuable adjuncts in the treatment of certain types of infection, Miller and Long[19] state that proper use of these enzymes will result in a saving of time in wound repair. They also note that the toxic effects from the topical application of SK-SD are "practically negligible." When the enzymes are introduced into closed spaces, such as the pleural cavity or the knee joint, there is a generalized reaction in many cases consisting of increased temperature and malaise which lasts for several hours and subsides quickly.[20] The cause of the reactions are not as yet clearly determined, but they may be due either to foreign materials in the solutions of SK-SD or to the breakdown products of their enzymic action.[21]

Such considerations as dosage, frequency of treatments, and methods of application are determined by the severity of the disease and the condition of the individual patient. The SK-SD in the standard vial is diluted with 10 to 20 cc of sterile physiologic saline solution; the dilution depending on the concentration of enzymes required for the specific condition under treatment. The solution, which should be used promptly, is introduced directly into the cavity or on to the affected area.

To achieve enzymatic cleaning, it is essential that the solution remain in close contact with the necrotic or suppurative area for several hours. In stressing this point, Miller and Long[19] observe that considerable thought and ingenuity is sometimes required to assure contact of the enzymes with the substrates with which they will react. This is efficiently accomplished in deep wounds through the use of catheters. Superficial wounds may be treated directly with dressings soaked in the solution. Another method requires the incorporation of SK-SD in a water-soluble jelly. The advantages of such a jelly for the treatment of superficial infected wounds and burns can be heightened by the addition of crystalline aureomycin.

Pertinent in this connection is the observation by Adie and Childress[20] that the addition of antibiotics to the enzyme solution, as such, will aid in reducing the infection in purulent processes and prevent contamination in non-infected collections of blood. The systemic use of chemotherapeutic or antibiotic agents, as indicated, is also permissible.[19]

As remarked by Tillet,[18] local topical instillations of SK-SD have been employed in a variety of diseases and, in many instances, striking and rapidly favorable effects leading to cure have been observed. In a review published in 1950, he and his associates[22] reported that SK-SD had been used in the treatment of various types of hemothorax and empyema, local infections like osteomyelitis and paranasal sinusitis, and miscellaneous chronic ulcerative lesions. A year later, Miller and his colleagues[17] gave the results of treatment with the

enzymes in the following diseases: actinomycosis, decubitus ulcers, empyema, gangrene, hemothorax, infected amputation stumps, osteomyelitis, obitis media pilodinal cysts with abscess, rectal infections, sinusitis, soft tissue infections, and tuberculosis. Excellent results were obtained in 80 of 85 patients. Poor results were reported in three of the four cases of gangrene and in one case each of osteomyelitis and soft tissue infection.

Others[20,23,24,25] have similarly reported on the value of SK-SD in a rather wide variety of conditions. These reports indicate that the enzyme combination is useful in many conditions, especially those in the thorax and soft tissues, where clotted blood and fibrinous or purulant accumulations are undesirably present after trauma or inflammation. At present, on the basis of these and other clinical reports,[26] the value of intrapleural application of SK-SD appears to be well established for the treatment of post-operative or traumatic hemothorax[15,27] and hematoma,[28] and of various types of empyema.[29,30,31]

Other conditions involving the pleural cavity and respiratory tract have responded to applications of SK-SD. Thus, Tillett and Sherry[32] treated 23 patients with exudative pleurisy by intrapleural injections of the enzymes. More recently, SK-SD was used with benefit in a case of unresolved pneumonia.[33] Armstrong and White[34] made a favorable report on the use of streptodornase as an aerosol in patients with viscous purulent pulmonary exudates.

The medical literature[17,19,22,26] also indicates the value of SK-SD in chronic suppurations, including infected wounds, burns and ulcers, draining sinuses, osteomyelitis, suppurative tuberculous adenitis, sinusitis, otitis media, and arthritis. Thus, it has been pointed out[35] that SK-SD offers the surgeon a new approach to the therapy of infected wounds. Since these enzymes have no effect on living tissue, the liquifaction of fibrin and pus not only eliminates the medium in which infection grows but also facilitates the formation of healthy granulation tissue. Hence, the secondary closure of infected wounds and of cold abscess can be done sooner and infected denuded areas can be cleaned up preparatory to skin grafting.

These effects help to account, for example, for the successful use of SK-SD in the treatment of grossly infected pilodinal cysts or those associated with abscess.[36] Similarly, Connell and Rousselot[10] found these enzymes to be effective aids in the atraumatic separation of slough in a variety of wounds and burns. Ziffren and May,[37] however, reported that the use of enzymes presented no general advantage over present methods of treating infected wounds and burns, although they may be useful in special cases.

In contrast, Wright and his colleagues[23] found that decubitus or bedsore ulcers healed more rapidly with SK-SD and that the enzymes actually cleaned wounds more thoroughly than was possible before their use. Likewise indicative is the report by McVey and Sprunt[38] that "medical debridement" using SK-SD is of value

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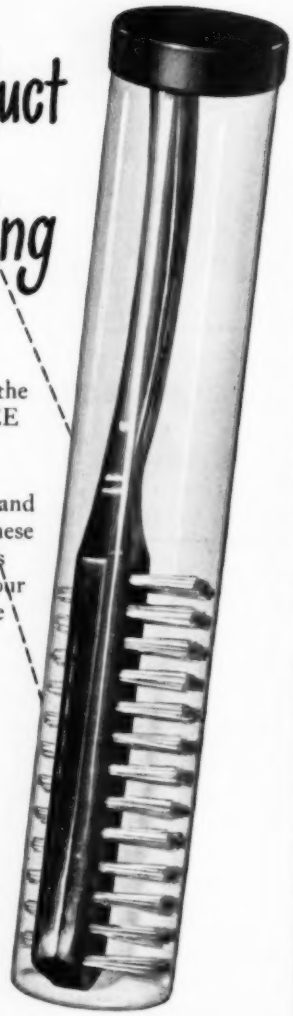

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in the conservative treatment of diabetic gangrene. More recently, Miller and his associates[39] observed that more rapid healing of tuberculous abscesses is obtained when surgical drainage is combined with SK-SD. The use of these enzymes as adjuncts to other measures offers a more satisfactory way of treating these lesions than older methods.

Trypsin is no newcomer to the field of enzymology and several crystalline trypsins are known. As explained by Tauber,[5] the direct preparation of crystalline trypsin is an "extremely difficult" procedure. However, this difficulty is avoided by first producing crystalline trypsinogen, from which the crystalline enzyme is then obtained.

Although trypsin is available from other sources, there is no doubt that interest in its value as a debriding agent for nicrotic wounds resulted from studies made with Tryptar. This brand of highly purified crystalline trypsin is prepared from mammalian pancreas by the Armour Laboratories.

In contrast to SK-SD, this purified form of trypsin has the advantage of being stable indefinitely at room temperature. While the dry powder may be used as such, the enzyme is frequently dissolved in Sorensen's phosphate buffer solution for application to the affected areas. This solution loses about three-quarters of its potency in three hours. Hence the solution must be freshly prepared at fairly frequent intervals to assure efficient enzymic action.

Upon application, say Reiser and his colleagues,[40] the enzyme dissolves the fibrinous strands and necrotic lesions in a matter of minutes, digests the slimy viscid coating and attacks the necrotic tissue. Eventually, as trypsin treatment is continued, a clean, pink, granulating surface remains. The enzyme does not affect living tissue, since sound or viable tissue contains trypsin inhibitors which stop the enzymic action almost instantaneously.

Under trypsin therapy, infecting bacteria rapidly diminish in number and eventually disappear. However, this sterilizing effect is not due to any direct bactericidal or bacteriostatic action on the part of the enzyme. Rather, it is attributable to a strengthening of the local defense mechanisms and to the removal of the culture medium (e.g. sloughs, debris and nicrotic tissue) in which the bacteria grow.

Reiser and his associates[8] have also pointed out that trypsin may be used in combination with antibacterial and antibiotic agents. The systemic use of antibiotics can be carried out simultaneously with the local application of the enzyme. Both penicillin and streptomycin may be mixed with solutions of trypsin and used locally. However, trypsin cannot be mixed in the same solution with aureomycin, although oral administration of this antibiotic is compatible with the local application of the enzyme.

Particular emphasis is given to the method by which trypsin is applied to the affected areas so as to assure contact with the purulent and nicrotic lesions.[41] The pH is an important consideration; tryptic activity being

optimum within a pH range of 6.8 to 7.5.[8] In the case of easily accessible surface lesions, such as ulcers, gangrene and open infected wounds and burns, the enzyme may be applied as a dry powder or a wet dressing or a combination of the two. With less readily, accessible lesions, like soft tissue abscesses, sinuses and fistulae, burns covered with eschars, hematomas and osteomyelitis, the trypsin solution can be instilled under gentle pressure from a hypodermic syringe or through a small catheter. Intrapleural instillation is employed for the treatment of empyema and hemothorax (to liquify intrapleural blood clots). When trypsin is employed in a body cavity as in an empyema cavity, a histamine-like reaction may take place. Hence, the administration of an antihistaminic drug is advisable. Quite recently, aerosol trypsin has been employed to promote bronchial cleansing in respiratory diseases.[42]

As with SK-SD, the intravenous administration of trypsin must be avoided. The enzyme is contraindicated in patients with acute yellow atrophy of the liver and advanced cirrhosis.

From the foregoing, it is evident that purified crystalline trypsin has found a number of important indications for the debridement of nicrotic tissue. Samuels,[43] for example reported that this form of the enzyme reduces the healing time of diabetic gangrene to a "tremendous degree." Similarly noteworthy is the report by Burleson[44] on the value of the enzyme in postoperative anorectal surgery. He indicated the usefulness of trypsin as a debriding agent in rectal soft tissue abscesses, sinuses and fistulae, pilodinal cysts and necrotic anal fissures.

On the basis of their broad experience with trypsin in the treatment of such conditions as grossly contaminated amputation stumps, subcutaneous hematoma, chronic osteomyelitis, recurrent carcinomatous ulcer, diabetic gangrene, sloughing wounds, varicose ulcers and decubitus ulcers, Reiser and his colleagues[8,40] feel that the enzyme should be considered an effective adjunct to the present therapy of suppurative and necrotic lesions of many types. Pointing to its rapidity of action, freedom from harm to viable tissue and to the fact that it is nonirritating and nonantigenic, they express the opinion that trypsin may well become the treatment of choice in infected wounds.

In the treatment of chest diseases,[45] they have found trypsin is particularly valuable in the therapy of various types of empyema, including those of tuberculous origin. Of importance in this connection is the use of trypsin as an aerosol. It has been found[42] that in clinical conditions in which heavy, thick, tenacious respiratory secretion is a significant factor, treatment with aerosol trypsin results in a number of beneficial effects and provides a safe and effective means for promoting bronchial cleansing. This, in turn, leads to a more normal bronchial physiology; the patient ridding himself of accumulated infectious and toxic respiratory debris and lysed mucus.

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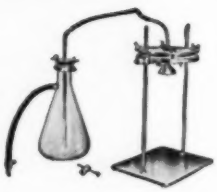

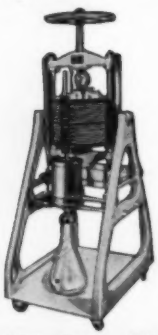

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papain from the papaya fruit has been the subject of considerable investigation.[5,46,47] Over the years, papain has found a number of useful industrial and medical applications[48,49] and more are being sought. Renewed interest in this enzyme is indicated in the recent symposium[50] on papain as published by the New York Academy of Sciences. In their review of the literature on the potential therapeutic significance of papain, as given in this symposium, K. Hivang and A. C. Ivy summarize the status of this enzyme as follows: "As a digestive enzyme, papain has been used in medicine for various conditions. It has been administered internally as an anthelmintic and for aiding digestion. Externally, it has been applied for certain ulcerative and various other skin lesions. It has been injected into certain tumor growths with good results. Intraperitoneal application of papain has been used with apparently good results for the prevention of postoperative adhesions, but the data have been considered doubtful."

In connection with this last observation, it may be mentioned that a combination of streptokinase and streptodornase has also been studied[50] for its effectiveness in preventing postoperative adhesions. These preliminary experiments were quite promising.[51]

Like SK-SD, papain has also been used for its ability to digest sloughing and necrotic tissues. It has also been used for its rapid solvent effect on mucus.[52] The same brand of papain is also a constituent of a dental powder which is claimed to provide both a mechanical and enzymic cleansing action. Of related interest is the work being done by Bullock and Sen[53] on proteolytic enzyme preparations for use by dentists to liquify the necrotic tissue in root canals and permit permanent filling of the canals. Papain preparations proved very effective in digesting the necrotic tissue in *in vitro* tests. *In vivo* trials are now in progress.

The proteolytic action of papain has also been well utilized in the preparation of protein hydrolysates for use in treating nutritional deficiencies.[53] Improved processes[54] for enzymatically preparing protein hydrolysates are based on the use of this enzyme.

Before concluding, mention should be made of pepsin, one of the most familiar of the proteolytic enzymes.[5] Still a subject of interest,[55,56] pepsin finds its greatest use in the treatment of gastric disturbances.[57] The National Formulary IX provides the official standards for pepsin and a number of pepsin preparations.

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(Continued from page 239)

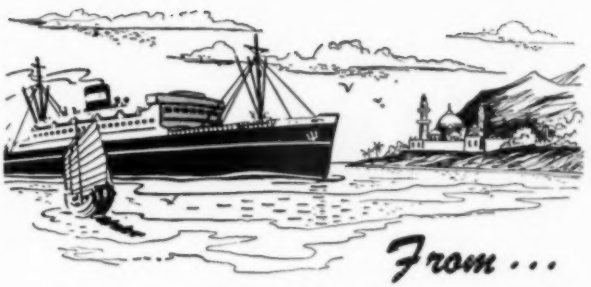
selection of suitable controls were considered of utmost importance. Accordingly therefore, three separate controls were established in addition to the untreated or normal eye already mentioned.

The ideal control, of course, was soap inasmuch as soap has been used from time immemorial for shampooing with complete safety from an eye damage viewpoint. Soap although not permanently damaging to eyes is irritating as everyone, we are sure, can confirm—particularly if they are parents of young children.

Type of soap and concentration presented another problem. Certainly from the viewpoint of universal usage, bar or soda soap was a logical choice. Yet soda soap did present limitations. Solubility was a problem since it is impossible to obtain a water-solution of soda soap of a concentration much greater than 10 per cent without encountering serious gellation whereas shampoos are generally far more concentrated. Moreover, soda or bar soap has not, in recent years, been used to any great extent for shampooing.

It was decided, however, that our primary control should be soda or bar soap in as high a concentration as would be practical. Consequently, a 10 gram per 100 ml. aqueous solution of a well-known brand of castile bar soap was used for this purpose. This, we believe, is in agreement with the thinking of our other workers.

In recent years the classic soap shampoo preparation has been liquid potassium or potash soap, almost universally coconut-oil based and marketed in fairly



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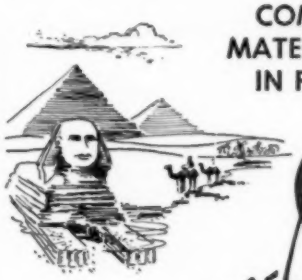

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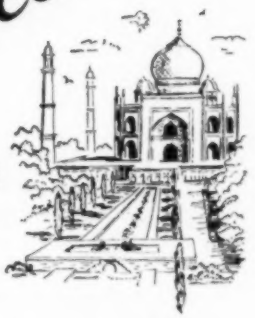

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high concentrations. For example, the Federal specification for Liquid Toilet Soap calls for an anhydrous soap content of not less than 15 per cent potash soap or equivalent.[3] In fact, liquid soap concentrations of 40 per cent have been known. Hence on the basis of long usage, and because it made possible the instillation of a higher soap concentration than that provided by the bar soap solution, a 40 per cent liquid potash soap shampoo was employed as a secondary control. Parenthetically, it might be stated that this particular 40 per cent liquid soap shampoo was marketed for many years by our Company, although its manufacture and distribution was discontinued several years ago. This shampoo had an excellent history of safe-usage, since, to the best of our knowledge, in all the years that it was sold, no complaint of eye irritation or eye damage had ever been received.

It was also felt desirable to include in the study, a preparation claimed to be capable of causing permanent ocular damage. For this purpose we chose a dandruff-treatment shampoo which had been removed from the market as a result of federal action. According to published reports, this product contained 2 per cent of a quaternary ammonium compound (lauryl isoquinolinium bromide) and more than 15 per cent of a polyoxyethylene non-ionic detergent.

A total of 11 commercial liquid shampoos were included in the investigation. These represented leading, nationally-advertised products for the retail trade, as well as for professional use in beauty shops, or both. They included synthetic detergent- and soap-type products, as well as combinations of both.

Table I shows a summary of the eye irritation results obtained on the commercial shampoos tested at the full-strength or as-sold concentration.

The information given in respect to shampoo type represents our best knowledge of the shampoos tested.

The values reported for "Single High Score" refer to the single, highest score recorded for any one test eye at any one of the scoring intervals. As explained previously, the test eyes were scored at one hour and two hours following instillation of test material and at daily intervals thereafter for 35 days.

The values reported for "Total Average Score" were obtained by adding all individual scores recorded at one hour, two hours, and daily thereafter and dividing by the number of tests conducted. We particularly emphasize that the one and two hour values are included in the total scores. This is not necessarily common practice and naturally if these hourly scores had not been included, total scores of a much lower order would have been realized.

Returned to normal refers simply to the day upon which the test eye was judged to have returned to normal as compared to the untreated eye. It may be noted that, in some cases, recovery extended beyond the 4th day which has been regarded by some as generally indicative of safety. This was true even in the case of the primary control as will be seen below.

All corneal opacity was temporary. It should be pointed out that, in the case of shampoos 3, 4, and 7, the temporary corneal opacity reported was noted in only one of the two test animals. We are unable to offer an adequate explanation for this variation but we highly suspect that it is due to a difference in the sensitivity of eyes of these rabbits. This variation between animals tested with the same material was also encountered in the case of the 40 per cent liquid potash soap control, as will be seen below.

Table II gives a summary of the eye irritation results obtained on the controls.

It will be noted that the primary control caused rather minor reactions, as evidenced by the low scores, and no corneal damage or opacity in the four tests. However, recovery in at least one case extended to the 6th day.

The 40 per cent Liquid Potash Soap Shampoo caused a more severe reaction with consequent higher scores and produced temporary corneal opacity in one of two test eyes. Here, too, as in the case of several of the test

TABLE I
SUMMARY—EYE IRRITATION RESULTS—SHAMPOOS

No.	Type	No. Tests	Single High Score	Total Average Score	Returned to Normal	Corneal Opacity
1	SYN. DET.	2	17 @ 2nd hr.	34	3rd-6th day	None
2	SYN. DET.	2	21 @ 1st hr.	32	3rd-5th day	None
3	SYN. DET.	2	58 @ 3rd day	178	5th-11th day	1 eye
4	SYN. DET.	2	50 @ 4th day	192	6th-15th day	1 eye
5	SOAP	5	19 @ 2nd hr.	34	3rd-6th day	None
6	SOAP	2	21 @ 2nd day	78	5th-6th day	None
7	SOAP	2	41 @ 2nd day	89	4th-6th day	1 eye
8	SD-SOAP	5	17 @ 1st hr.	35	3rd-5th day	None
9	SD-SOAP	5	21 @ 2nd hr.	38	4th-5th day	None
10	SD-SOAP	5	21 @ 2nd hr.	42	4th-6th day	None
11	SD-SOAP	2	45 @ 1st hr.	260	12th day	2 eyes

TABLE II
SUMMARY—EYE IRRITATION RESULTS—CONTROLS

Control	No. Tests	Single High Score	Total Average Score	Returned to Normal	Cornea Opacity
1. Soda Soap (10g/100 ml.)	4	15 @ 1st hr.	25	3rd-6th day	None
2. 40% Liq. Potash Soap	2	41 @ 2nd day	178	3rd-12th day	1 eye
3. Dandruff Treatment Shampoo	5	104 @ 4th day	942	Permanent Damage	5 eyes

shampoos, severity of reaction was noted in only one of the two test animals.

The third control caused very severe reactions and permanent corneal opacity in all of 5 test eyes as reflected in the high scores. Corneal opacity is judged to be permanent when it continued for a period of 35 days or longer.

In this table we have included the pH and concentration of each of the test shampoos. The remainder of the table is a summary of previous data arranged in order of severity of eye reaction (table III, page 258).

The pH values were determined on the materials as instilled into the animal eyes which, in all cases except the soda soap, was the full-strength of as sold preparation.

There appears to be little, if any, correlation between severity of eye reaction and pH, concentration, or type of test material. We wish to emphasize, however, that the concentration of all test shampoos and other controls are greater than that of the soda soap control which caused the least severity of reaction. It will be noted that the anhydrous contents of the test shampoos range from 15 to 54 per cent. The mean is 33 per cent. These concentrations are considerably greater than that of the soda soap control.

Also included in our studies were a few tests on a group of miscellaneous hair preparations, other than shampoos, which were considered capable of accidental introduction into the eye under customary conditions of use.

Table IV (page 258) gives a summary of the eye irritation results obtained on this group of miscellaneous hair preparations.

As can be seen, this group of miscellaneous hair preparations tested included a beauty shop cold permanent wave lotion of the thioglycolate-type; various cold permanent wave neutralizers; two rinses, one for soap removal and one a cationic creme rinse; and two alcohol-water scalp lotions containing various medicaments for scalp and dandruff treatment. In all cases, the preparation was instilled into the test eye at the recommended use concentration.

Eye irritation was generally of rather low order as shown by the scores and the lack of corneal damage or opacity. Recovery in several cases extended beyond the 4th day.

Discussion

In presenting this report, we wish to point out that in some instances the results must be regarded merely as indicative. In these cases much additional data would be required before attempting to draw final conclusions.

It is apparent from the results that the commercial shampoos tested caused somewhat more eye irritation than the primary control, 10 per cent (wt/vol) soda soap. This in itself is not surprising since it has already been shown that these shampos had anhydrous contents far greater than the 10 per cent of this control. In fact, the anhydrous contents ranged from 15 to 54

KOMMON/ SCENTS!

The majority of the nation is marking the middle of its vacation period. President Truman took his vacation with reverse English: He remained in Washington while the Republicans all went to Chicago.

•

The purpose of the convening Republicans, of course, was also vacation-influenced. They wanted to discontinue the one they've had from the White House for 20 years and give the Democrats a chance. It's not that the Democrats are tired. It's just that the Republicans are tired of them.

•

Most disappointing feature of the Republican National Convention was the keynote address of General MacArthur. He proved old soldiers never die, they just fade away as Convention speakers. The General sounded like a Senator in Shakespeare's version of "Julius Caesar." The Convention had looked forward to something a little more up-to-date.

•

Most colorful members of the Convention tussles were those individuals who confuse drawing inspiration from the past with living in the past. There were some who insisted that Taft deserved re-election on his record. Three days passed before they realized the difference between William Howard Taft and Robert A. Taft. Naturally, there were also those cynics who asked: "There's a difference?"

•

In all the exaggeration that seems licensed in politics and politicking, the most precise statement came from New York's Governor Thomas E. Dewey. He pointed to himself as an example of frustrated over-confidence. It was Dewey's best-placed shot since Manilla Bay.

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TABLE III

pH—CONCENTRATION—TYPE VS. SEVERITY OF EYE IRRITATION

No. or Control	pH @ 25°/C.	% Anhydrous	Type	Total Average Score	Corneal Opacity — — Recovery
Soda Soap	9.8	10g/100 ml.	SOAP	25	↑
2	5.5	19	SD	32	|
1	6.3	29	SD	34	NO CORNEAL OPACITY
5	7.8	45	SOAP	34	•
8	7.9	40	SD-S	35	RETURNED TO NORMAL
9	8.0	30	SD-S	38	3rd-6th DAY
10	8.0	30	SD-S	42	|
6	9.3	34	SOAP	78	↓
7	9.5	31	SOAP	89	↑
3	7.2	36	SD	178	| TEMPORARY CORNEAL
Liq. Pot. Soap	9.8	40	SOAP	178	OPACITY IN SOME EYES
4	7.3	15	SD	192	•
11	10.1	54	SD-S	260	RETURNED TO NORMAL
Dand. Treat.	6.8	21	SD	922	3rd-15th DAY
					↓
					PERM. OPACITY

per cent with a mean of 33 per cent. We wish to emphasize that concentrations of this order are necessary in order to provide the end results required by the consumer in respect to lather and adequate cleanliness of the hair and scalp. We would also like to point out that such concentrations have been common practice for years and we site as an example the 40 per cent liquid potash soap shampoo previously described.

We also wish to emphasize the very severe nature of the tests conducted in that full-strength shampoo was instilled into the test eyes. Customarily, and almost universally, directions for use of shampoos call for the hair to be wet before the preparation is applied. It is our feeling that, under these customary conditions of use, it is possible but extremely unlikely that full-strength shampoo will be accidentally introduced into the eye. We stress, moreover, that the seized shampoos had directions for use which were quite different in that the user was instructed to apply these products full strength to the dry hair and scalp.

It is considered significant that the test shampoos generally showed less severe eye effects than the secondary control, 40 per cent liquid potash soap shampoo. This control caused a rather severe reaction in one test eye and did produce temporary corneal opacity in this eye. We emphasize, however, that this is a preparation which had been in use for many years—a preparation which had stood the best of tests—safe use by a large group over a long period.

The final control comparison is with the dandruff treatment shampoo. It is obvious that the test shampoos in no way approached the severity of reaction evidenced by this control which showed extreme scores and caused permanent corneal opacity in all cases.

TABLE IV

SUMMARY—EYE IRRITATION RESULTS—MISCELLANEOUS HAIR PREPARATIONS

Preparations Tested	No. Tests	Single High Score	Total Average Score	Returned to Normal	Corneal Opacity
1. Beauty Shop C. W. Lotion	1	15 @ 1 hr.	46	5th day	None
2. C. W. Neutralizer A	1	15 @ 2 hr.	40	7th day	None
3. " " B	1	13 @ 1 hr.	21	4th day	None
4. " " C	1	11 @ 1 hr.	25	4th day	None
5. " " D	1	11 " "	27	5th day	None
6. " " H_2O_2	1	11 " "	28	4th day	None
7. Soap Removal Rinse	2	13 " "	25	3-7th day	None
8. Creme Rinse (Cationic)	1	8 " "	22	4th day	None
9. Alc-H_2O Scalp Lotion A	2	23 " "	87	7-8th day	None
10. Alc-H_2O Scalp Lotion B	2	21 " "	76	7th day	None

It is interesting to note that the results show no apparent marked variation between soap shampoos and those containing synthetic detergents. This appears to be in agreement with previous reports. In fact, it has been common practice to compare synthetic detergents to soap in respect to eye effects. Woodard & Calvery,[4] for example, concluded after a review of literature that apparently in rabbit's eyes, the surface active agents behave not unlike soap.

The rather low order of eye irritation shown by the other miscellaneous hair preparations tested was rather surprising particularly in view of the fact that many of these preparations are active chemical oxidizing and reducing agents. In the case of cold wave lotions and neutralizers, the results are in agreement with a recent report by Brunner[5] to the effect that only mild temporary irritation resulted from the instillation of thioglycolate and neutralizers in rabbit eyes.

Summary

1. Rabbit eye irritation studies were conducted on a group of commercial shampoos and other miscellaneous hair preparations. This latter group included a cold permanent wave lotion, neutralizers, rinses, and scalp lotions.
2. The shampoos tested caused somewhat more eye irritation than 10 per cent (wt/vol.) soda soap but generally were no more severe in action than a 40 per cent liquid potash soap shampoo, a preparation with a long, safe-use history.
3. The miscellaneous hair preparations showed a generally lower order of eye irritation than the shampoos.
4. None of the test materials caused permanent ocular damage.

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Surface Activity and Rabbit Eye Irritation

(*Continued from page 185*)

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Objective

For some time it has been realized that in general the eye irritant potential of surface active agents follows the order of cationics >anionics >nonionics. There are, however, exceptions to this order which suggest that factors other than this classification by chemical nature might be involved, or that there may be a correlation between eye irritation and some more specific property of these agents. The results to be presented are essentially those arrived at in attempts to reveal such a correlation. The materials tested and their physical properties are summarized in Table No. 2.

Methods

With this in mind, certain physical and chemical properties were studied for correlation with *capacity* to produce eye injury, as well as *potency* in such activity. To confine the survey to general trends, no attempt has been made to review the minimum exposures required to produce injury. In turn, injury has been interpreted broadly rather than strictly. As outlined elsewhere, eye injury may involve generalized erythema, edema, necrosis, vascularization of the sclera and/or cornea, and opacity. Also, injury may vary in onset, severity, and duration.

Criteria for injury evaluated were adopted on the basis of moderate to severe degree and duration of several days following application to the eye. Additional weighting included certain more hazardous injuries such as prolonged opacity and incidence of pannus. For quantitative comparison the maximum concentration, in percent of active ingredient in aqueous solution, which will produce only moderate irritation is used if available. Exceptions are those agents used undiluted and designated as 100 per cent, but which did not necessarily produce injury. This capacity to induce injury is the irritant potential for a specific material. Potentials of 1.0 per cent to 10 per cent may be considered as severe irritants, 10 per cent to 20 per cent as moderate, and above 20 per cent as mild. Without these generalized groupings such a correlation study would become buried in minutia and the details would be endless.

On the basis of available data the following observations appear to be justified:

1. Surface Activity

Of the 28 materials included in this report the maximum variation in surface tension of the 1.0 per cent solution is from 27 to 46 dynes per centimeter. Determinations were made on the Cenco-du-Nuoy Tensometer at 25°C. In view of the wide variations in irritant potential there appears to be very little possibility of a correlation between this and surface activity.

2. pH

The pH of aqueous solutions of the surface active agent is not necessarily characteristic of the chemical,

TABLE No. 2

Surface active agents and their physical properties. Wetting power was determined by the Draves method and foam height by the Ross-Miles method. C = cationic, A = anionic, N = nonionic.

Trade Name	Class	pH 10%	Surface Tension dynes/cm at 10%	Wetting Power sec. at 0.1%	Foam Height mm. at 1.0%	Protein PPT 1.0% or 10%	Irritation Potential	Opacity
G-271®	C	7.11	33	>300	217	+	1	+
Hyamine 1622®	C	7.01	36	142	268	+	1	+
Ceepryn®	C	4.79	41	258	240	*	1	+
Emcol E607®	C	3.48	37	300	213	*	1	+
Roccal®	C	7.28	33	234	110	*	1	+
Hyamine 2389®	C	7.30	31	85	292	+	1	+
Isothan Q-15®	C	3.93	34	300	150	+	1	+
Dupanol WAT®	A	7.11	32	31	273	—	20	+
Ultrawet 60L®	A	7.10	30	10	302	—	10	+
Armour's #600 KOP Soap	A	9.52	27	>300	375	—	10	+
Ivory Soap®	A						>10	+
Span 20®	N		28	>300	14		100	—
Span 80®	N		30	>300	13		100	—
Tween 20®	N	6.81	36	203	173	—	100	(—)
Tween 40®	N		40	>300	87	—	100	(—)
Tween 60®	N		43	>300	81		100	—
Tween 65®	N		31	>300	27		100	—
Tween 80®	N	6.46	40	>300	59		100	—
G-7596J®	N		33	203	162		100	—
Myri 45®	N		33	>300	15		100	—
Myri 52®	N		44	>300	26		100	—
Brij 30®	N	4.70	28	51	18	—	20	+
Brij 35®	N	6.02	42	174	220		100	—
G-2132®	N	5.98	28	13	247	—	20	10
G-3721®	N	4.39	27	7	287	—	<20	+
Renex®	N	6.95	39	>300	77	—	100	—
G-1690®	N		31	8	235	—	<10	++
G-1790®	N	5.83	46	>300	23	0	100	—
G-1441®	N		43	>300	31		100	—

but is influenced by manufacturing process. The pH of various dilutions of the test materials used was determined on the Beckman Model G pH Meter. The range of the pH was from 3.93 to 9.52, with most of the values falling at approximately pH 6.0 to 7.0. Experience with other classes of compounds and lack of correlation within the present series eliminates the significance of pH per se as the cause of eye irritation. Examples of this are as follows:

	pH	*Irritant Potential*
Soap	9.5	10.0 per cent
G-1790®	5.8	100.0 " "
Roccal®	7.0	1.0 " "
Isothan Q-15®	4.8	1.0 " "

3. Wetting Power (Draves Method) at 0.1 per cent

Within the group of 28 materials tested six were moderately good wetters with values below 51 seconds, and the balance were 85 or above. When all the materials are compared there appears to be very poor correlation between wetting power and irritation, for example:

	Seconds	*Irritant Potential*
Tween 40, 60, 80®	> 300	100.0 per cent
Brij 30®	51	20.0 " "
Isothan Q-15®	300	1.0 " "
alkyl aryl sulfonate	10	10.0 " "

Among the nonionics only there appears to be a correlation between the wetting properties and the relative degree of irritant potential. None of the group having a value of 174 seconds or longer exhibited irritation either undiluted or in solution. Four of the nonionics had values of 51 seconds or less, and each was rated for irritation at 20 per cent or less. No such correlation could be established within either the limited anionic or cationic groups studied.

4. Foaming Power (Ross-Miles Test) at 1.0 per cent

Foam heights for noninjurious, undiluted materials ranged from 13 to 220 mm., and even higher for material with an irritant potential rating of 20 per cent or above. Therefore, good foamers are not necessarily irritant, but there is some evidence that most of the irritant chemicals are good foamers. Of these irritant at 1.0 per cent, Roccal® has the lowest foam value, 110 mm.

5. Wetting and Foaming

Since it is indicated that there might be some slight correlation between wetting power or foaming power and eye irritation, the combination of these two properties is obviously suggested. The data here suggest that good wetting plus good foaming may be an irritant combination. For example:

	Wetting	*Foaming*	*Irritant Potential*
alkyl aryl sulfonate	10 secs.	302 mm.	10 per cent
G-3721®	7 secs.	287 mm.	< 20 " "
G-1690®	8 secs.	235 mm.	< 10 " "

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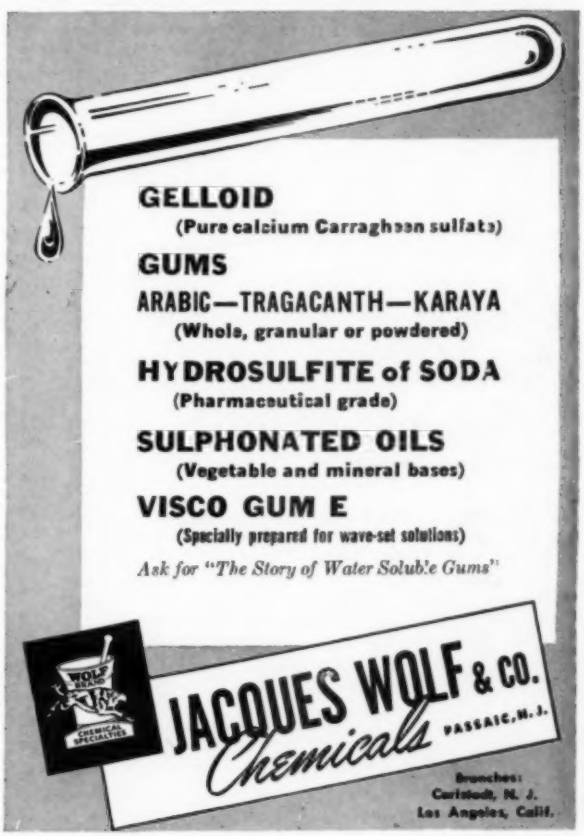

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That these two properties are not essential to highly irritant materials is adequately indicated by:

	Wetting	*Foaming*	*Irritant Potential*
Hyamine 1622®....	142 secs.	268 mm.	1.0 per cent
G-271®.....	> 300 secs.	217 mm.	1.0 " "

Unfortunately the series does not include a really good wetter which is a poor foamer. The best example is Brij 30®, with 51 seconds and 18 mm., and an irritant limit of 20 per cent. It appears, therefore, that a material which is a good wetter and foamer has a good chance of being irritant, but absence of this combination is far from being critical.

6. Protein Precipitation

In a screening type test for the protein precipitation properties, 10 per cent fresh egg albumen was used and either 1.0 per cent or 10 per cent solutions of the surface active agents. Within the scope of the materials tested none but the cationics exhibited protein precipitant properties. Of these, Roccal,® Emcol E607,® and Ceepryn® precipitated protein in alkaline solution only. These observations do not contribute much, therefore, in the way of predicting irritant potential. It is possible that a large-scale investigation might distinguish more clearly or evaluate more accurately the relation of protein precipitation to eye irritation although at this time it appears so closely associated with chemical structure as to not hold a great deal of promise. For the sake of screening the present results indicate that materials of the cationic type which precipitate protein in vitro could be expected to be injurious to the eye. Care must be exercised in formulating these materials when their use may bring them into contact with the eyes.

Investigators familiar particularly with the opacity phase of eye irritation appear to be inclined to the feeling that protein alteration or precipitation must play an important role. The reaction is extremely rapid and even flushing the eye within a few seconds after application does not prevent it. Depending upon the degree of reaction, reversibility may be accomplished after periods of one to several days, or only after very long periods.

7. Opacity

A further attempt to correlate the capacity for production of opacity was made in the present series. In no case did this property appear to diverge from that of generalized irritation. There was, of course, extreme variation in the degree of opacity, as well as the duration. In the over-all picture, however, any material which produced opacity also produced the other signs of generalized irritation described. Opacity is most prominent in the case of the cationics, although it did occur in the anionics and in the nonionics. Of the latter group those which were nonirritating when undiluted

produced either an extremely mild and transient opacity or none at all.

8. Erythrocyte Compatibility

Since in vitro protein precipitation tests coincide with opacity only partially, the possibility of osmotic influences was investigated in a preliminary manner, selecting only two examples of each chemical group. On a theoretical basis such an influence would not explain the rapidity of opacity development but may be a contributing factor.

A drop of heparinized whole blood from the rabbit was mixed on a microscope slide with one drop of the surface active solution. Under the microscope three different types of reaction could be observed. The cationics caused precipitation or coagulation of the cells. The anionics caused hemolysis, and the nonionics were completely compatible. This approach to correlation may merit additional study since anionics produced hemolysis at concentrations well below those which are irritating.

Summary

In this preliminary survey some of the most prominent physical, chemical, and physiological characteristics of the surface active agents have been reviewed in terms of their capacity to produce eye injury. Both the injury and the evaluation of the physical and chemical properties have been in general terms. No attempt has been made to critically differentiate, for example, between what is technologically a good wetting or a good foaming agent. Not to be overlooked is the possibility that more critical evaluations of the significance of groupings within these values might contribute to our understanding of eye irritation in relation to such properties. Furthermore, since these studies were on the surface active agents per se in aqueous solution, it must be kept in mind that formulation into finished products may appreciably alter the potential. This factor has been previously demonstrated in the course of product development.

At present it appears that neither pH per se nor surface tension contributes materially to the irritation. Good wetting powers within the nonionics appear to correlate with irritation, but this is not true of the cationics. Since only one member of each of three types of anionics was tested; namely, soap, alkyl sulfate, and alkyl aryl sulfonate, the data are inadequate for evaluations within this group. On the other hand, while foaming per se is not critical, most of the irritant materials are at least relatively good foamers. Perhaps the best partial correlation is that good wetters which are good foamers are likely to be irritant. Many irritants, however, particularly the cationics, do not have this combination of properties, and therefore their absence is not assurance of nonirritation.

Protein precipitation appears to be associated primarily with the cationics and as such is not much more revealing than the chemical classification on the basis of

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the present data. The incidence of opacity is associated with generalized irritation and as a separate evaluation does not appear to be significant. There appears to be fairly general correlation between opacity and protein precipitation. Within the nonionics group, however, certain members have opacity-producing properties without protein coagulating properties, and even this correlation, therefore, is tenuous.

Further data on erythrocyte compatibility appears to be desirable although it, too, may follow chemical classification.

From this it appears that the previously recognized order of cationics > anionics > nonionics is still the best initial criterion for prediction of eye irritant potential. Within each of these groups chemical and physical properties may serve as guides in predicting this potential but none is sufficiently critical to substitute for the eye as a final test.

The Citronella Dilemma

(Continued from page 177)

unstable world conditions, they shy away from tying too much of their money up in any one commodity.

The second important factor is that consumers, or purchasing agents, do not buy on a descending market. If a company should procure large quantities of the oil when the price is 65 cents, only to find the value down to 60 cents the following month, it would be losing 5 cents for every pound. Conversely, should the market be on the way up, it would be saving money with each price change.

This is an endless cycle. Consumers will not buy until there is a reversal in the declining market, as long as they have enough stocks on hand to see them through. And as long as the low prices persist, farmers tend to neglect the citronella plants; yet, some dealers have expressed the opinion that the price will still drop further.

The Java and Ceylon oils are quite dissimilar in quality and have entirely separate uses. The Java oil, which is superior to that of Ceylon, contains 35 per cent citronellal and 85 per cent geraniol, while the Ceylon product has very little citronellal and, at best, no more than 60 per cent geraniol. Citronellal is by far the most important constituent, and from it are made hydroxycitronellal which imparts floral odors—Lily of the valley and lilac—to perfumes; citronellol, rose odors; and many esters—citronellyl acetate, formate, benzoate and valerianate—to name a few, all of which provide various shades of odors. From citronellal, moreover, comes synthetic menthol which has extensive use in tooth pastes, pharmaceutical preparations, and in tobacco.

Geraniol and its esters are sought by soap manufacturers, and, somewhat, by perfumers, but it is impossible to obtain the pure product, completely free of the citronella character, from the Ceylon oil. It can be obtained from the Java oil in the desired purity.

The Java oil, therefore, is of great value principally because of its many useful derivatives, while the Ceylon oil is almost all used as such in the insecticide and soap industries. When incorporated in soaps in a diluted form, it closely simulates the characteristics of lemon.

While Ceylon is the only source of Ceylon citronella oil, Indonesia is but one of many regions producing the Java oil. Owing to label requirements, Guatemala, Formosa, and the other areas must call their product Java-type oil because, although it does not come from the island of Java, it matches that island's product very closely and equals it in quality.

With the over-production in Formosa and the activity in Guatemala, the soft condition of the market, it appears, will continue for some time. As the farmers in the respective areas continue to neglect their citronella plants it is inevitable that in a few years a severe production shortage will develop. The entire situation depends on when the price trend will turn upward and how long it will take before consumers re-enter the market with enough force to absorb the surplus material. There is an incipient move this month, on the part of the soap manufacturers, toward the cheaper Java oil, although they normally use the Ceylon grade.

The Industrial Pharmaceutical Library

(*Continued from page 183*)

sonal development, training courses, or college courses.

4. Indexing Service: Sifting the current literature for information pertinent to the company's operations takes various forms. Photostatic copies of journal title pages assembled as an index, abstracts of the literature, or listings of pertinent periodical titles are all commonly used methods of bringing current information to the attention of the staff. Each system has its advantages and drawbacks, but each apparently works to the satisfaction of the company concerned. Catalog cards are generally made for items included in the various indexing services and filed permanently. This periodical card catalog then serves as a quick finding reference tool and also bridges the gap between the appearance of an article and its inclusion in printed indexes.
5. Inter-library Loans: Books and periodicals that employees request and that are not in the library are borrowed from outside libraries. Frequently a pharmaceutical library will make special arrangements with a nearby public or university library for daily pick-up and delivery service, and with no limitations on the number of books to be borrowed. In general it is preferable to obtain photostatic or microfilm copies of periodical references, for the library then has a permanent file copy of the material for future reference.

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6. Translations: Translation service is offered by most libraries. Many libraries have translators on their staffs. Others maintain files of translators within and without the library who are qualified to translate the scientific literature.

Attendance at professional meetings is an important part of the pharmaceutical librarian's job for they add to the librarian's knowledge and perspective and also result in useful contacts.

There are many professional associations for the industrial pharmaceutical librarian. The more important ones are the Special Libraries Association, Medical Library Association, American Chemical Society, and American Library Association.

The Special Libraries Association is of interest to most pharmaceutical librarians. The Association has an extremely active pharmaceutical section, made up of the librarians of the major pharmaceutical companies. In addition to sponsoring an annual meeting, the pharmaceutical section has sponsored many projects of value to the industry. The most successful project is the monthly publication, "Unlisted Drugs," which gives the composition, manufacturer, and literature reference for all new drugs which have not yet appeared in the standard drug reference books such as the "Modern Drug Encyclopedia," "Drug Topics Red Book," and "New and Nonofficial Remedies."

A Union List of Serials in the industrial pharmaceutical libraries has just been completed by the section. Two current and commendable projects are an index of house organs and publications of the drug industry and a list of sources of drug information. The very fine esprit de corps among the members of the Special Libraries Association Pharmaceutical Section has been a strong factor in the success of these cooperative projects and meetings.

The Medical Library Association also has a pharmaceutical section which meets annually during the Association convention. This section is composed of pharmacy school librarians primarily, but industrial pharmaceutical librarians are also well represented. The Association sponsors regional group meetings which are of interest. The Midwest Regional Group has held annual all-day meetings during the past three years at the Upjohn Company, Abbott Laboratories, and Eli Lilly & Company. These meetings provide pharmaceutical librarians with an excellent opportunity to visit industrial pharmaceutical libraries similar to their own.

The Division of Chemical Literature of the American Chemical Society is comparatively new, but the Division has already distinguished itself with the high quality of the programs which it offers. The emphasis of the programs quite naturally is on chemical literature, with a strong secondary interest in machine documentation methods in the laboratory and library. The membership of the Division is made up of chemists, literature chemists, and industrial librarians, with a scattering of industrial pharmaceutical librarians.

The Pure and Applied Sciences Section of the Ameri-

can Library Association is just now in its second year. The Division programs held in connection with the annual American Library Association Conference might possibly be of interest to pharmaceutical librarians. The membership of the Division is composed mainly of technical and scientific librarians in college, university, and public libraries.

In the United States more than 1,200 firms are engaged in the manufacture of pharmaceutical preparations. Not all of the firms maintain libraries, however. Those that do, have libraries which vary in size and scope of collections, size of staff, and number and quality of services offered. The larger industrial pharmaceutical libraries may contain up to 30,000 volumes, receive more than 1,500 current periodical titles, and have staffs of twenty or more members. In general it is true that "One might well rate the importance any firm attaches to its program of research and development, by the character, organization, and efficiency of its library, and the training, competence, and inspired capacities of its librarians."

Among the companies maintaining larger libraries in the pharmaceutical industry are: Abbott Laboratories, Lederle Laboratories, Eli Lilly & Co., Parke, Davis, & Co., Sharp & Dohme, Inc., E. R. Squibb & Sons, and the Upjohn Company.

The Risks of Drug Development

(Continued from page 175)

Two recent examples are the sulfa drugs and the antihistamines. However, in the case of the antibiotics this has not been true. Penicillin was most widely used by the medical departments of the Armed Forces during the war, and it has been, and still is being widely used by the medical profession in all types of conditions. Thus far penicillin has been regarded as harmless, although there are numerous instances of allergy to the drug, most of which are not of a real serious nature.

Finding that penicillin was relatively harmless and that it had no side-reactions of a real serious nature, the medical profession probably assumed that antibiotics as a whole would be a harmless class of drugs. Certainly in no other class of drugs had the succeeding ones proved more harmful than its predecessors, but on the contrary, the succeeding ones had proved safer than its predecessors. However, this has not been the case in antibiotics. Streptomycin was quickly found to have quite serious side-effects which required great caution in its use. However, despite these side-reactions, it still proved an essential drug in limited conditions. Aureomycin had its drawbacks, although these were not so serious in nature, and terramycin also produced rather uncomfortable conditions of a minor nature in many instances. But now we are faced with evidence that Chloromycetin produces, in at least some cases, a condition that leads to fatalities. If this is supported by further evidence, it will be a serious blow to Parke, Davis & Company, sole producers of the product.

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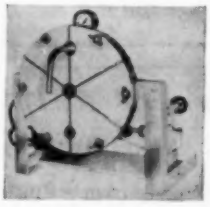

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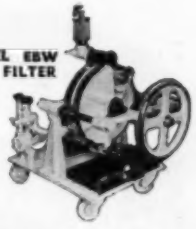

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Chloromycetin as a cause of aplastic anemia is outstanding evidence of the great risk which drug and pharmaceutical manufacturers run in the development and marketing of a new product. For here is a product which has proven so highly efficacious in a wide variety of infectious conditions that its sales by the manufacturer are in the neighborhood of fifty million dollars. Furthermore, the company has just recently completed erection of a plant of 19 buildings on 28 acres of ground, and containing more than one million dollars worth of special equipment for production of this one drug at Holland, Michigan. Whether or not Chloromycetin is a dangerous drug which should be used with extreme caution, or not at all, remains to be definitely proven after much more work has been done. And while the American Medical Association has raised this serious question, the final determination will not be up to the American Medical Association or the manufacturer. Rather will it be up to the Federal Food and Drug Administration, for this is the agency which is charged by the people of the country with determination of the safety of drug products.

The case of Chloromycetin should impress most strongly upon everyone engaged in the drug and pharmaceutical manufacturing industry the extent of their responsibility and the attendant risks which this responsibility entails. Apparently there is no such thing as being completely sure of one's product in this industry, no matter how much work or money is involved.

Fair Trade Restored

(Continued from page 171)

The law as enacted follows:

An Act

". . . to amend the Federal Trade Commission Act with respect to certain contracts and agreements which establish minimum or stipulated resale prices and which are extended by State law to persons who are not parties to such contracts and agreements, and for certain other purposes."

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

That it is the purpose of this Act to protect the rights of States under the United States Constitution to regulate their internal affairs and more particularly to enact statutes and laws, and to adopt policies, which authorize contracts and agreements prescribing minimum or stipulated prices for the resale of commodities and to extend the minimum or stipulated prices prescribed by such contracts and agreements to persons who are not parties thereto. It is the further purpose of this Act to permit such statutes, laws, and public policies to apply to commodities, contracts, agreements, and activities in or affecting interstate to foreign commerce.

SEC. 2. Section 5 (a) of the Federal Trade Com-

mission Act, as amended, is hereby amended to read as follows:

"SEC. 5. (a) (1) Unfair methods of competition in commerce, and unfair or deceptive acts of practices in commerce, are hereby declared unlawful.

"(2) Nothing contained in this Act or in any of the Antitrust Acts shall render unlawful any contracts or agreements prescribing minimum or stipulated prices, or requiring a vendee to enter into contracts or agreements prescribing minimum or stipulated prices, for the resale of a commodity which bears, or the label or container of which bears, the trade-mark, brand, or name of the producer or distributor of such commodity and which is in free and open competition with commodities of the same general class produced or distributed by others, when contracts or agreements of that description are lawful as applied to intrastate transactions under any statute, law, or public policy now or hereafter in effect in any State, Territory, or the District of Columbia in which such resale is to be made, or to which the commodity is to be transported for such resale.

"(3) Nothing contained in this Act or in any of the Antitrust Acts shall render unlawful the exercise or the enforcement of any right or right of action created by any statute, law, or public policy now or hereafter in effect in any State, Territory, or the District of Columbia, which in substance provides that willfully and knowingly advertising, offering for sale, or selling any commodity at less than the price or prices prescribed in such contracts or agreements, whether the person so advertising, offering for sale, or selling is or is not a party to such a contract or agreement," is unfair competition and is actionable at the suit of any person damaged thereby.

"(4) Neither the making of contracts, or agreements as described in paragraph (2) of this subsection, nor the exercise or enforcement of any right or right of action as described in paragraph (3) of this subsection shall constitute an unlawful burden or restraint upon, or interference with, commerce.

"(5) Nothing contained in paragraph (2) of this subsection shall make lawful contracts or agreements providing for the establishment or maintenance of minimum or stipulated resale rices on any commodity referred to in paragraph (2) of this subsection, between manufacturers, or between producers, or between wholesalers, or between brokers, or between factors, or between retailers, or between persons, firms, or corporations in competition with each other.

"(6) The Commission is hereby empowered and directed to prevent persons, partnerships or corporations except banks, common carriers subject to the Acts to regulate commerce, air carriers and foreign air carriers subject to the Civil Aeronautics Act of 1938, and persons, partnerships, or corporations subject to the Packers and Stockyards Act, 1921, except as provided in section 406 (b) of said Act, from using unfair methods of competition in commerce and unfair or deceptive acts or practices in commerce."

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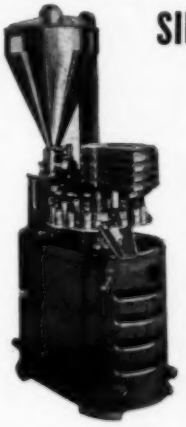

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